MRCP (UK) PART 1

May 2022

A 74-year-old man is admitted to the Cardiology Ward with progressive lethargy, night sweats and loss of weight. He underwent a prosthetic aortic valve replacement five months ago. He has a blood pressure of 123/84 mmHg and his heart rate is 85 bpm and regular. There is an ejection systolic murmur loudest in the aortic area. He has splinter haemorrhages affecting the nails of both hands.

Investigations:

Investigation	Result	Normal value
Haemoglobin (Hb)	102 g/l	135–175 g/l
White cell count (WCC)	8.3 × 10 ⁹ /l	$4-11 \times 10^9$ /l
Platelets (PLT)	209 × 10 ⁹ /l	150-400 × 10°/l
Sodium (Na+)	143 mmol/l	135–145 mmol/l
Potassium (K+)	4.3 mmol/l	3.5–5.0 mmol/l
Creatinine (Cr)	118 µmol/l	50–120 μmol/l
C-reactive protein	82 mg/l	< 10 mg/l
Echocardiogram	Aortic valve vegetations	

Which of the following is the most likely causative organism?

Your answer was incorrect

A Candida albicans

B Enterococcus faecalis

C Haemophilus influenzae

D Klebsiella pneumoniae

E Staphylococcus epidermidis

Staphylococcus epidermidis

Coagulase-negative *staphylococci* are the most common cause of prosthetic valve endocarditis detected within 2–12 months of valve surgery. The other frequently encountered pathogens include *Staphylococcus aureus* and *streptococci*, followed by *enterococcal* species. Cases are a mix of delayed-onset nosocomial infections acquired at the time of surgery and community-acquired infections. For *staphylococci* sensitive to penicillins the combination of flucloxacillin with gentamicin and rifampicin is the most appropriate intervention.

A Candida albicans

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Fungal endocarditis is very unusual and accounts for around 2% of cases, but with an extremely high mortality rate of between 30% and 80%. Fungal endocarditis is usually more common with prosthetic valves than with native valves. Other risk factors include previous cardiac surgery, use of a central line, long-term antibiotics and immunosuppression.

B Enterococcus faecalis

Enterococcal endocarditis is much rarer as a cause of disease compared to endocarditis caused by staphylococci and streptococci. Vancomycin and gentamicin are a typical combination regimen for the treatment of enterococcal disease.

C Haemophilus influenzae

Haemophilus influenzae is one of the haemophilus, aggregatibacter (previously actinobacillus), cardiobacterium, eikenella, kingella organisms. These are responsible for a very small proportion of cases of endocarditis and are difficult to culture. A four to six week course of ceftriaxone is usually required.

D Klebsiella pneumoniae

Feedback

Klebsiella pneumoniae is a rare cause of bacterial endocarditis because it does not adhere well to heart valves. The more likely cause of *Klebsiella pneumoniae* is abnormal blood flow across a previously damaged valve. It can be treated with Ceftriaxone and gentamicin as a typical antibiotic regimen.

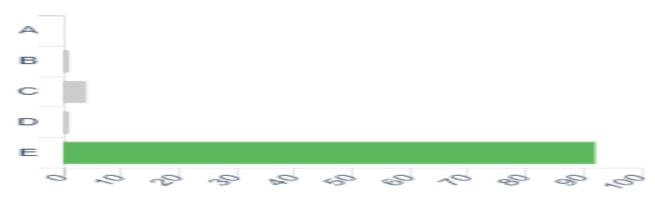
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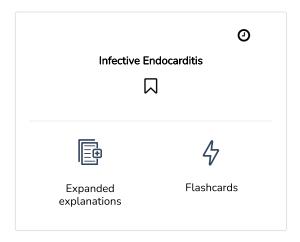
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A 23-year-old woman presents to the Emergency Department in an extremely agitated state. She has been unwell with diarrhoea and vomiting over the past 24 hours and took an anti-sickness pill from a friend which had been purchased over the counter in India. She has a fixed stare to the left, backward and lateral flexion of her neck and tongue protrusion.

Which of the following is the patient most likely to have taken?

Your a	answer was incorrect	
Α	Cyclizine	
В	Diphenhydramine	
С	Domperidone	
D	Metoclopramide	
Е	Ondansetron	
Explar	nation	*
D	Metoclopramide	

This patient has symptoms of an oculogyric crisis related to the use of a dopamine antagonist. From the options given metoclopramide is a D2 dopamine receptor antagonist and is well recognised as a cause of this presentation. It is also seen to occur with prochlorperazine. Benzatropine or procyclidine are potential interventions; given inravenously, they exert their effects within five minutes.

A Cyclizine

Cyclizine is an antihistaminergic antiemetic. It does not carry any risk of oculogyric crisis. Adults are recommended to take 50 mg up to 3 times a day, for motion sickness, 1–2 hours before their journey. It is also used in palliative care for nausea and vomiting treatment.

B Diphenhydramine

Diphenhydramine is an antihistaminergic antiemetic that does not carry any risk of oculogyric crisis. It can also be used to treat and prevent dystonias, insomnia, pruritis, urticaria, vertigo, and motion sickness.

C Domperidone

Although domperidone is a dopamine antagonist with antiemetogenic properties, it is associated with a much lower incidence of oculogyric crisis compared to metoclopramide.

E Ondansetron

Ondansetron is a centrally acting anti-emetic that works via 5HT-3 receptor antagonism. It is not a dopamine antagonist and therefore does not cause an oculogyric crisis.

53315 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % Q. Answered Flagged Q1 Q2 Q3 Q4

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A 49-year-old man presents to the General Practitioner with weight gain and tiredness, which has increased steadily over the last three months. He takes no medication and is otherwise well. He has gained 5 kg in weight in total. His blood pressure is 139/82 mmHg and his heart rate is 58 bpm and regular.

Investigations reveal thyroid-stimulating hormone at 1.0 mU/l (normal value 0.3–4.2 mU/l) and free thyroxine 8.1 pmol/l (normal value 9–23 pmol/l).

Which of the following is the most likely diagnosis?

Your answer was incorrect

A Graves' disease

B Hashimoto's disease

C lodine deficiency

D Secondary hypothyroidism

E Toxic multinodular goitre

Explanation

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D Secondary hypothyroidism

This patient's symptoms are consistent with hypothyroidism with weight gain and lethargy. The free thyroxine level is below the lower limit of normal, which should drive an increase in thyroid-stimulating hormone level. The thyroid-stimulating hormone level here is, however, towards the lower end of the normal range. This suggests that the pituitary is unable to produce enough thyroid-stimulating hormone and secondary hypothyroidism is the likely diagnosis. Pituitary magnetic resonance imaging and pituitary function blood tests are the most appropriate next steps.

A Graves' disease

Graves' disease leads to symptoms of thyrotoxicosis. Patients can present with vomiting, diarrhoea, delirium and severe weakness. The biochemical picture here is one of elevated free thyroxine level and suppressed thyroid-stimulating hormone level.

Hashimoto's disease

Hashimoto's thyroiditis leads to reduced free thyroxine level and elevated thyroid-stimulating hormone level. There is lymphocytic infiltration of the thyroid gland which is not seen here.

C lodine deficiency

В

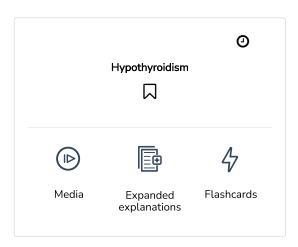
lodine deficiency is associated with hypothyroidism because of failure to produce adequate amounts of thyroid hormone. The thyroid-stimulating hormone level is, however, increased.

E Toxic multinodular goitre

Toxic multinodular goitre is associated with hyperthyroidism where the free thyroxine level is above the upper limit of normal and the thyroid-stimulating hormone level is suppressed.

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A 55-year-old woman, who has rheumatoid arthritis, presents to the Emergency Department with an acutely painful left eye. She has photophobia. There is severe reddening of the eye, with prominent vessels throughout the sclera. Slit-lamp examination reveals clear views of the retina.

Which of the following is the most likely cause of this patient's symptoms?

Your a	answer was incorrect
А	Acute glaucoma
В	Anterior uveitis
С	Episcleritis
D	Posterior uveitis
Е	Scleritis
Expla	nation

Scleritis is associated with widespread reddening of the sclera with prominent vessels. The eye is also painful with watering and there is photophobia. This is in contrast to episcleritis where inflammation is more limited and there is usually no significant pain. There is an association of scleritis with rheumatoid arthritis, which fits with the scenario here. Progression to necrotising scleritis is possible in severe cases. Systemic non-steroidal anti-inflammatory drugs (NSAIDs) are the initial intervention of choice, with oral prednisolone in patients who do not respond to NSAIDs.

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A Acute glaucoma

Scleritis

Ε

Acute glaucoma is associated with severe ocular pain and a hard globe due to increased ocular pressure. There is also severe deterioration in visual acuity.

Anterior uveitis

Anterior uveitis is associated with ocular inflammation and inflammatory cells in the anterior chamber are noted on slit-lamp examination.

C Episcleritis

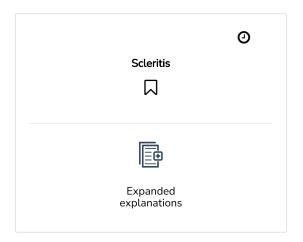
Episcleritis is associated with scleral vessel prominence. Inflammation is, however, more limited and the condition is generally not associated with pain.

D Posterior uveitis

Posterior uveitis is associated with the presence of inflammatory cells in the posterior chamber, which can be identified on slit-lamp examination.

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A 74-year-old man, who is known to have small cell lung cancer, is brought to the Emergency Department by paramedics with increasing confusion, drowsiness and inability to mobilise from the chair at home. His blood pressure is 139/89 mmHg and his heart rate is 85 bpm and regular. There is a wheeze on auscultation of the chest, consistent with chronic obstructive pulmonary disease and coarse crackles more marked on the right than on the left.

Investigations:

Investigation	Result	Normal value
Haemoglobin	110 g/l	135–175 g/l
White cell count	9.1 × 10°/l	$4-11 \times 10^9$ /l
Platelets	302 × 10 ⁹ /l	150-400 × 10 ⁹ /l
Sodium (Na+)	122 mmol/l	135–145 mmol/l
Potassium (K+)	4.5 mmol/l	3.5–5.0 mmol/l
Bicarbonate	32 mmol/l	23–29 mmol/l
Creatinine	85 µmol/l	50–120 μmol/l

Which of the following is the most appropriate way to treat the patient's hyponatraemia?

Your answer was incorrect

A 0.9% sodium chloride, 2 litres over 12 hours

B 1.8% sodium chloride, 500 ml repeated boluses

C Fluid restriction

D Oral demeclocycline

E Oral tolvaptan

Fluid restriction

C

This patient does not have life-threatening sequelae of hyponatraemia (coma or seizures). Hence the safest initial management for his syndrome of inappropriate antidiuretic hormone (the cause of hyponatraemia here) is fluid restriction to 1200 ml/day. This should bring about a slow improvement in his sodium level and avoid catastrophic central pontine myelinolysis. The usual aim is an increase in serum sodium level of around 8–10 mmol/day. Where there are serious neurological sequelae and a more rapid increase in sodium level is desired, the patient must be managed in the High Dependency Unit/Intensive Therapy Unit, with central line monitoring and very regular serum sodium measurements.

A 0.9% sodium chloride, 2 litres over 12 hours

Administration of 0.9% sodium chloride is not recommended for the treatment of hyponatraemia. With a normal creatinine level and no signs of significant fluid depletion, fluid restriction is the preferred initial step for this patient.

B 1.8% sodium chloride, 500 ml repeated boluses

Administration of 1.8% sodium chloride is an emergency intervention for hyponatraemia where there are significant neurological sequelae. It should be administered in higher care settings, with frequent monitoring of sodium levels and water balance.

D Oral demeclocycline

Oral demeclocycline drives nephrogenic diabetes insipidus and can be used to treat patients with hyponatraemia who do not initially respond to fluid restriction.

E Oral tolvaptan

Tolvaptan is a selective V2 antagonist which increases free water excretion. It can be used in some cases of the syndrome of inappropriate antidiuretic hormone, the diagnosis here. Given there is no neurological emergency, however, it is safer to proceed initially with fluid restriction.

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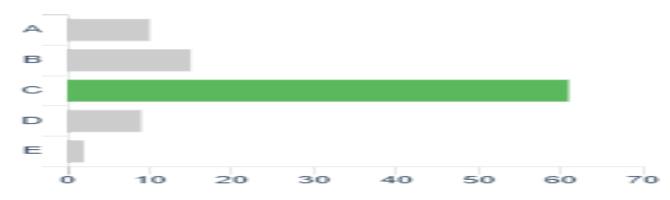
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A 45-year-old man presents to the hospital for his regular venesection as a treatment for haemochromatosis. He complains of acute pain affecting his left knee. Examination reveals limitations of flexion, knee effusion and pain on palpation.

Investigations:

Investigation	Result	Normal value
Haemoglobin	142 g/l	135–175 g/l
White cell count	$7.1 \times 10^9/l$	$4-11 \times 10^9$ /l
Platelets	110 × 10 ⁹ /l	150-400 × 10 ⁹ /l
Sodium (Na+)	142 mmol/l	135–145 mmol/l
Potassium (K+)	3.9 mmol/l	3.5–5.0 mmol/l
Creatinine	85 µmol/l	50–120 μmol/l

Left knee X-ray shows calcification of the meniscus.

Which of the following is the most likely diagnosis?

Your answer was incorrect

A Gout

B Infective arthritis

C Osteoarthritis

D Prepatellar bursitis

E Pseudogout

Explanation



The presence of monoarthritis in a patient with haemochromatosis, coupled with calcification of the meniscus, is suggestive of pyrophosphate arthropathy or pseudogout. In contrast to gout, knee aspiration reveals weakly positive birefringent crystals. In acute arthritis, there is usually also a raised white cell count in the joint fluid, with a neutrophil predominance. Non-steroidal anti-inflammatory agents, intra-articular corticosteroids and oral colchicine are all potential treatment options.

A Gout

Gout is a potential differential for monoarthritis, although the X-ray changes and haemochromatosis are greater pointers towards pseudogout. Joint aspiration will help differentiate between the two.

B Infective arthritis

Infective arthritis is a differential for monoarthritis, although the presence of chondrocalcinosis and the history of haemochromatosis raise the probability of pseudogout being the cause of this patient's symptoms.

C Osteoarthritis

Osteoarthritis could account for the presentation with monoarthritis, although the discrete chondrocalcinosis seen here, in the absence of other joint changes, is more suggestive of pseudogout.

D Prepatellar bursitis

Prepatellar bursitis is swelling and inflammation confined to the anterior knee. It can either be septic or none septic and is more common in men aged 40–60 years, people whose occupation involves prolonged kneeling and people who play sports which involve repetitive movement of the knees or direct impact to the knees.

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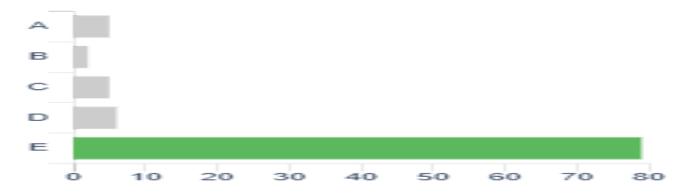
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	Pseudogout	•
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Media	Expanded explanations	Flashcards

A 34-year-old woman presents to the General Practitioner for a review. She has systemic lupus erythematosus and joint disease treated with hydroxychloroquine. The General Practitioner is very concerned as she has had a 40% increase in her serum creatinine level over the past three months.

Which of the following would be expected on blood testing?

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- A Increased C3 levels
- B Reduced C-reactive protein levels
- C Reduced C1 inhibitor levels
- D Reduced C3 levels
- E Reduced C5a levels

Explanation

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D Reduced C3 levels

In patients with active lupus, particularly involving the kidneys, C3 and C4 become activated in tissues where inflammation is taking place. This leads to a reduction in both C3 and C4 levels in blood. Both can be measured as markers of lupus activity. A small percentage of patients have inherited C4 deficiency, meaning that C3 levels are the preferred investigation for the majority of laboratories.

A Increased C3 levels

C3 levels in blood are reduced in patients with active lupus, particularly lupus nephritis, because there is tissue activation of the complement pathway.

B Reduced C-reactive protein levels

C-reactive protein levels are increased in patients with active lupus, as a sign of ongoing inflammatory activity.

C Reduced C1 inhibitor levels

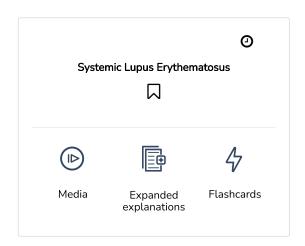
C1 inhibitor levels are actually normal in patients with active lupus. There is, however, functional deficiency with respect to its activity in a significant percentage of patients with systemic lupus erythematosus.

E Reduced C5a levels

C5a is formed by cleavage of C5 under conditions of complement activation. Levels are increased in the blood of patients with active systemic lupus erythematosus.

53415 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % C 10 20 50 Q. Answered Flagged Q1 Q2 Q3 Q4

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A new test is developed for coronavirus disease 2019 (COVID-19) infection.

Which feature represents the performance of a test to identify true positives versus false positives?

Your	answer	was i	ıncorı	rect

A False discovery rate

B Negative predictive value

C Positive predictive value

D Sensitivity

E Specificity

Explanation

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C Positive predictive value

The positive predictive value is calculated by dividing the number of true positives by the number of true positives plus false positives.

A False discovery rate

The false discovery rate is used to define the proportion of positive tests which are false. It is calculated by taking the positive predictive value (PPV) away from 1 (1 - PPV).

B Negative predictive value

The negative predictive value is the representation of the true negative value of a test vs the number of tests that are false negatives. It is calculated by dividing the number of true negatives by the number of true negatives plus false negatives.

D Sensitivity

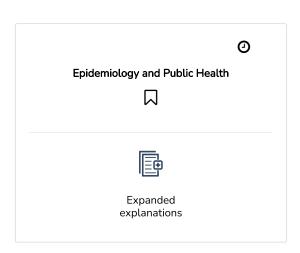
Sensitivity is the probability of a positive test, given that the patient has the disease. It is calculated by dividing the number of true positives by the number of true positives added to the number of false negatives.

E Specificity

Specificity is the ability of a test to correctly identify people without a disease. It is calculated by dividing the number of true negatives by the number of true negatives added to the number of false positives.

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A 19-year-old man presents to the Emergency Department with fevers, abdominal pain and diarrhoea. He returned from a festival a few days earlier. He has no medical illnesses and is a vegetarian. His temperature is 37.9 °C. His blood pressure is 132/82 mmHg, his heart rate is 89 bpm and regular. His abdomen is soft, but generally tender, and he has active bowel sounds.

Investigations:

Investigation	Result	Normal value
Haemoglobin	102 g/l, fragmented red cells seen on film	135–175 g/l
White cell count	12.3 × 10 ⁹ /l	$4-11 \times 10^{9}$ /l
Platelets	55 × 10 ⁹ /l	150-400 × 10°/l
Sodium (Na+)	142 mmol/l	135–145 mmol/l
Potassium (K+)	5.2 mmol/l	3.5–5.0 mmol/l
Creatinine	195 µmol/l	50–120 μmol/l

Which of the following is the most likely cause of the patient's symptoms?

Your answer was incorrect

Α Bacillus cereus

В Escherichia coli

С Norovirus

D Salmonella typhi

Ε Staphylococcus aureus

Explanation



E. coli is recognised to cause haemolytic uraemic syndrome, the likely diagnosis here, with a diarrhoeal illness, haemolysis and renal impairment. Outbreaks have previously been described at festivals, including after exposure to contaminated vegetarian food, such as the German outbreak linked to bean sprouts. Management is supportive. Certain patients may benefit from early plasma exchange or from use of anti-complement monoclonal antibodies.

A Bacillus cereus

B. cereus food poisoning occurs because of exposure to a toxin produced by the bacterium as it grows in contaminated cooked rice. It leads to either vomiting or diarrhoea a few hours after ingestion.

C Norovirus

Norovirus is associated with 24–48 hours of projectile vomiting and watery diarrhoea. It is self-limiting in younger patients and does not lead to haemolytic uraemic syndrome.

D Salmonella typhi

Although haemolytic uraemic syndrome, the likely diagnosis here, has been associated with *S. typhi*, this is in the context of typhoid fever, which does not fit with the symptoms reported here.

E Staphylococcus aureus

S. aureus food poisoning is characterised by vomiting occurring a few hours after ingestion of dairy products contaminated by *S. aureus* toxin. Symptoms are usually self-limiting.

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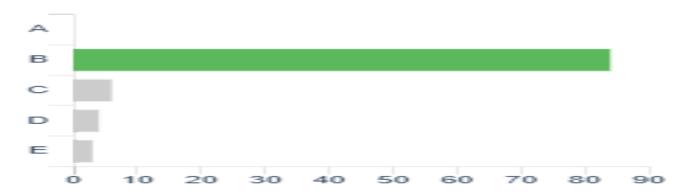
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Haemolytic Uraemic Syndrome	
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Expanded	
explanations	

A 45-year-old man presents to the Emergency Department with nausea, vomiting and a low-grade fever over the past few days. He has consumed 500 ml of vodka per day for the past ten years and denies illicit drug use. His blood pressure is 105/72 mmHg. He has jaundiced sclerae, scratch marks and spider naevi. He is tender in the right upper quadrant.

Investigations:

Investigation	Result	Normal value
Alanine aminotransferase	45 IU/l	1–40 IU/l
Asperate aminotransferase	103 IU/l	10-35 IU/l
Alkaline phosphatase	391 U/l	30–130 U/l
Bilirubin	57 µmol/l	< 21 µmol/l
Prothrombin time	19 seconds	< 12 seconds

Which of the following is the most likely diagnosis?

Your answer was incorrect

A Alcoholic liver disease

B Autoimmune hepatitis

C Non-alcoholic steatohepatitis

D Primary biliary cholangitis

E Primary sclerosing cholangitis

Explanation



Alcoholic liver disease

This patient has an AST: ALT ratio > 2. Given the significant alcohol consumption and cholestatic picture on the liver function tests, this fits with a diagnosis of alcoholic liver disease. Liver biopsy is characterised by perivenular hepatocellular necrosis and ballooning degeneration. There is also macro- and microvesicular steatosis and neutrophil drive inflammation. Abstinence from alcohol is the key intervention, coupled with appropriate nutritional supplementation. Decompensation should prompt a referral for a liver transplant.

B Autoimmune hepatitis

Autoimmune hepatitis is associated with a hepatitis picture, rather than the predominantly cholestatic picture seen here. It is also more commonly seen in women and would not fit with the picture of significant alcohol consumption described here.

C Non-alcoholic steatohepatitis

The AST: ALT ratio here is > 2, which is normally not seen in non-alcoholic steatohepatitis and is much more commonly seen in alcoholic hepatitis.

D Primary biliary cholangitis

Primary biliary cholangitis is commoner in women and usually presents with itching and tiredness some time before frank jaundice occurs.

E Primary sclerosing cholangitis

Primary sclerosing cholangitis is associated with a cholestatic picture on liver function testing. It is often seen against a background of inflammatory bowel disease.

Peer Responses %

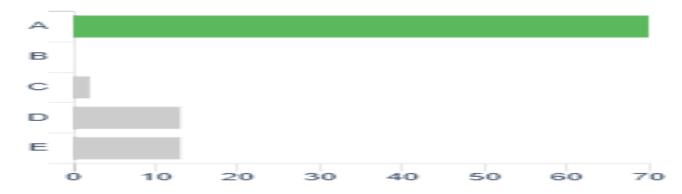
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Alcoholic Liver Dis	⊙ sease and Alcoholism
Media	Expanded explanations

A 19-year-old woman presents to the Neurology Clinic with seizures. They are usually characterised by an inability to move her left arm, followed by limb jerking, which begins in the hand and spreads proximally. Sometimes the seizures progress to involve mouth and tongue movements where she has chewed her tongue to the point of bleeding. Neurological examination in the clinic is unremarkable.

Which of the following is the most likely site of this patient's epileptic focus?

Α	Left occipital lobe
R	Left temporal lobe

Your answer was incorrect

C Right frontal lobe

D Right occipital lobe

E Right parietal lobe

Explanation

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E Right parietal lobe

Seizure activity affecting the primary sensory area of the parietal lobe leads to abnormal sensation, including prickling and crawling which spreads up the affected limb. This is followed by motor activity. When seizure activity extends to the parieto-occipital junction, it may lead to abnormal eye movements, including nystagmus, and when it extends to the fronto-parietal operculum, swallowing, chewing movements and hypersalivation can be seen.

A Left occipital lobe

Occipital lobe epilepsy is rare and primarily leads to positive (typically coloured shapes or flashes) or negative (loss of vision) visual phenomena. It is unique to the individual can can be challenging to diagnose.

B Left temporal lobe

Temporal lobe seizures are the commonest cause of focal seizures and can include symptoms related to temporal lobe function such as odd emotional changes or a feeling of déja vu.

C Right frontal lobe

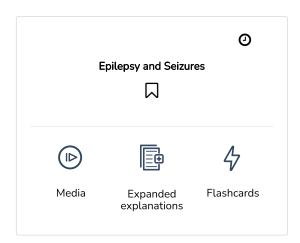
Frontal lobe seizures can present with abnormal body posture and, in some cases, uncontrollable laughing or crying. They tend to occur at night and can cause a tonic-clonic seizure.

D Right occipital lobe

The occipital lobe seizures present with visual field disturbance. This may include negative symptoms such as loss of vision, and positive symptoms such as flashing lights or colours, corresponding to the occipital lobe affected.

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A 42-year-old woman presents to the Rheumatology Clinic with small joint polyarthritis and a photosensitive rash affecting her face, chest and forearms. She has been unwell for three months and the joint pains have not responded to regular naproxen prescribed by her General Practitioner. An erythematous skin rash is confirmed on examination, as well as small joint polyarthritis. Her urine is positive for blood and protein.

Which of the following antibodies is most likely to be positive on investigation?

Your answer was incorrect

A Anti-cyclic citrullinated peptide

B Anti-nuclear

C Anti-smooth muscle

D Anti-neutrophil cytoplasmic antibodies

E Perinuclear anti-neutrophil cytoplasmic antibodies

Explanation

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B Anti-nuclear

This patient's presentation with a photosensitive rash and small joint polyarthritis, as well as haematuria and proteinuria (possible renal vasculitis), raises the possibility of systemic lupus erythematosus. Approximately 95% of patients with lupus have positive anti-nuclear antibodies, although they are also found in around 5% of the general population. Anti-double-stranded (ds) DNA antibody titre and measurement of C3 complement factor may further help in confirming the diagnosis of active lupus. Where active joint disease is the prominent feature, hydroxychloroquine is a typical first-line intervention.

A Anti-cyclic citrullinated peptide

Anti-cyclic citrullinated peptide antibodies are most likely to be found in patients with active rheumatoid arthritis and correlate well with rapidly progressive disease.

C Anti-smooth muscle

Anti-smooth muscle antibodies are most strongly associated with autoimmune hepatitis, which most commonly presents in middle-aged women with lethargy and progressively worsening itching.

D Anti-neutrophil cytoplasmic antibodies

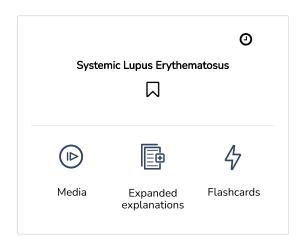
Anti-neutrophil cytoplasmic antibodies show granular staining throughout the cytoplasm of neutrophils. They are mostly associated with granulomatosis with polyangiitis.

E Perinuclear anti-neutrophil cytoplasmic antibodies

Perinuclear anti-neutrophil cytoplasmic antibodies are found in patients with ulcerative colitis, eosinophilic granulomatosis with polyangiitis and primary sclerosing cholangitis, as well as in some patients with rheumatoid arthritis.

53325 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % 20 50 Q. Answered Flagged Q1 Q2

Q.	Answered	Flagged
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A 32-year-old woman is referred to the Cardiology Clinic with suspected primary pulmonary hypertension. She has increasingly worsening exercise tolerance and has had three syncopal episodes in the past three months.

Which of the following is the most likely finding on physical examination?

Your answer was incorrect

- A Decreased intensity of the second heart sound (P2)
- B Early diastolic murmur best heard at the apex
- C Ejection systolic murmur loudest in the second left intercostal space
- D Increased intensity of A2
- E Pansystolic murmur loudest at the left lower sternal edge

Explanation

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Pansystolic murmur loudest at the left lower sternal edge

Tricuspid regurgitation is a feature of pulmonary hypertension, even relatively early in the disease course. It is a pansystolic murmur best heard at the left lower sternal edge. The murmur may be augmented by inspiration.

Other features of pulmonary hypertension include the increased intensity of the pulmonary component of P2 right ventricular heave and a pulsatile liver when there is advanced right heart failure.

A number of options exist for treatment, including endothelin-1 receptor antagonists, phosphodiesterase type 5 inhibitors and prostacyclin analogues.

A Decreased intensity of the second heart sound (P2)

Increased intensity of P2 is found in patients with pulmonary hypertension because of increased flow over the valve. A decreased intensity of P2 can be found in patients with chronic obstructive pulmonary disease.

Early diastolic murmur best heard at the apex

Early diastolic murmur best heard at the apex is more suggestive of mitral stenosis. It is more likely to be found in elderly patients with a history of rheumatic heart disease.

C Ejection systolic murmur loudest in the second left intercostal space

Ejection systolic murmur loudest in the second left intercostal space is the murmur of pulmonary stenosis, which when normally presenting in adulthood is due to a congenital valve malformation.

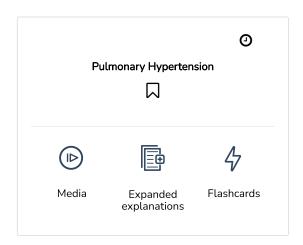
D Increased intensity of A2

В

A2 is normally much louder than P2. In pulmonary hypertension, it is the intensity of P2 that increases.

53304 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % В 40 Ó 10 20 30 Q. Answered Flagged Q1 Q2 Q3

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A 19-year-old woman presents to the Endocrine Clinic for a follow-up. She has congenital adrenal hyperplasia, for which she takes regular hydrocortisone.

Which of the following enzymes is this patient most likely to be deficient in?

Your answer was incorrect

Α	5-alpha reductase deficiency

B 11-beta hydroxysteroid dehydrogenase 1 deficiency

C 11-beta hydroxysteroid dehydrogenase 2 deficiency

D 17-hydroxylase deficiency

E 21-hydroxylase deficiency

Explanation

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E 21-hydroxylase deficiency

Deficiency in 21-hydroxylase is the cause of around 95% of cases of congenital adrenal hyperplasia. It is responsible for hydroxylation at the C21 position of progesterone and 17-alpha hydroxyprogesterone. The classical form presents with salt wasting in childhood and features of virilisation in women. It is treated with hydrocortisone replacement. Non-classical adrenal hyperplasia can present with irregular periods and features of virilisation in adult women.

A 5-alpha reductase deficiency

5-alpha reductases are responsible for a number of processes involving steroid metabolism, including bile acid biosynthesis and androgen and oestrogen metabolism. They do not play a role in the development of congenital adrenal hyperplasia.

11-beta hydroxysteroid dehydrogenase 1 deficiency

The enzyme 11-beta hydroxysteroid dehydrogenase 1 catalyses the conversion of cortisone to cortisol. Overactivity is thought to play a role in the development of obesity and metabolic syndrome.

C 11-beta hydroxysteroid dehydrogenase 2 deficiency

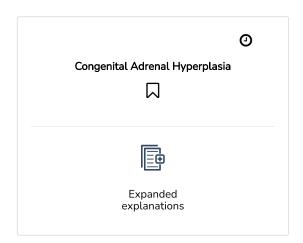
The enzyme 11-beta hydroxysteroid dehydrogenase 2 is responsible for conversion of cortisol to cortisone. Deficiency can lead to a syndrome of juvenile hypertension and apparent mineralocorticoid excess.

D 17-hydroxylase deficiency

Deficiency in 17-hydroxylase is extremely rare, being responsible for only 1% of cases of congenital adrenal hyperplasia.

53355 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % в Ó 10 20 30 40 50 60 Q. Answered Flagged Q1 Q2 Q3 Q4

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A 21-year-old woman presents to the Emergency Department after fainting at the gym. She says she goes three times per week and would like to lose more weight because she is fat. She also admits to restricting her calorie intake. She has attended the Emergency Department three times before with a paracetamol overdose. Her body mass index is 15 kg/m².

Investigations:

Investigation	Result	Normal value
Haemoglobin	103 g/l	115–155 g/l
White cell count	$7.1 \times 10^9/l$	$4-11 \times 10^9$ /l
Platelets	162 × 10 ⁹ /l	150-400 × 10 ⁹ /l
Sodium (Na+)	134 mmol/l	135–145 mmol/l
Potassium (K+)	3.1 mmol/l	3.5–5.0 mmol/l
Creatinine	75 μmol/l	50–120 μmol/l

Which of the following is the most likely underlying diagnosis?

Your answer was incorrect

A Addison's disease

B Anorexia nervosa

C Body dysmorphia

D Bulimia nervosa

E Thyrotoxicosis

Explanation



Given this patient is restricting her calorie intake and continuing to exercise, with a body mass index of only 15 kg/m², anorexia nervosa is the most likely diagnosis. The low potassium level seen on blood testing raises the possibility of the use of laxatives, and the haemoglobin level of 103 g/l suggests poor nutrition. Body dysmorphia is a component of anorexia and accounts for the fact that this patient believes she is fat. Individual eating disorder-focused cognitive behavioural therapy is the intervention of choice.

A Addison's disease

Addison's disease is associated with weight loss, nausea and vomiting. However, the low K⁺ level is inconsistent with Addison's disease as the underlying diagnosis.

C Body dysmorphia

Body dysmorphia alone could only be the diagnosis if this patient was not calorie-restricting and did not have a body mass index of only 15 kg/m^2 . Taking these two factors into account makes anorexia much more likely.

D Bulimia nervosa

Bulimia nervosa is characterised by repeated cycles of binging and purging. Given the only information received in the vignette is related to calorie restriction, anorexia is the more likely diagnosis.

E Thyrotoxicosis

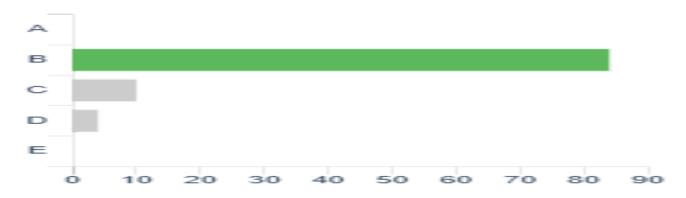
Had this patient been suffering from unintended weight loss, then thyrotoxicosis could be considered as a potential diagnosis. Given she admits to calorie restriction, anorexia is much more likely to be the cause of her symptoms.

Previous Question

Feedback

Difficulty: Average

Peer Responses %



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	Anorexia Nervosa	O
		4
Media	Expanded explanations	Flashcards

A 42-year-old woman who works part-time at a farm is referred to the Respiratory Clinic with worsening asthma despite high-dose inhaled corticosteroids, inhaled long-acting beta agonist therapy and montelukast. Auscultation of the chest reveals wheeze and scattered coarse crackles. Peak flow is 70% of predicted value.

Investigations:

Investigation	Result	Normal value
Haemoglobin	139 g/l	115–155 g/l
White cell count Eosinophils	9.2×10^9 /l 2.8×10^9 /l	$4-11 \times 10^9$ /l $0.05-0.5 \times 10^9$ /l
Platelets	234 × 10°/l	150-400 × 10 ⁹ /l
Sodium	140 mmol/l	135–145 mmol/l
Potassium	3.9 mmol/l	3.5–5.0 mmol/l
Creatinine	75 μmol/l	50–120 μmol/l

Chest X–ray shows patchy shadowing throughout both lung fields.

Which of the following is the most likely diagnosis?

Your answer was incorrect

A Allergic bronchopulmonary aspergillosis

B Aspergilloma

C Eosinophilic granulomatosis with polyangiitis

D Invasive aspergillosis

E Systemic mastocytosis

Allergic bronchopulmonary aspergillosis

This patient's presentation with worsening asthma, despite optimal chronic therapy, and patchy shadowing on the chest X-ray, with raised eosinophils, is consistent with allergic bronchopulmonary aspergillosis. Her working at a farm raises the possibility of exposure to Aspergillus spores. Positive Aspergillus skin testing is seen, and immunoglobulin E is also elevated. Systemic corticosteroids, combined with itraconazole, are the mainstay of therapy, with omalizumab an option in patients who do not respond initially.

B Aspergilloma

Α

Aspergilloma is a limited area of Aspergillus infection which usually appears as a ball-like lesion on the chest X-ray, often within an old tuberculosis cavity.

C Eosinophilic granulomatosis with polyangiitis

Eosinophilic granulomatosis with polyangiitis is associated with worsening asthma symptoms and elevated eosinophil counts, but also with other symptoms of vasculitis, including sinusitis and mononeuritis.

D Invasive aspergillosis

Invasive aspergillosis is characterised by disseminated infection, including via haematogenous spread, usually occurring in patients who are immunocompromised.

E Systemic mastocytosis

Systemic mastocytosis is characterised by an accumulation of mast cells, particularly in the skin. It is mainly characterised by inflammatory skin reactions, itching and hives.

Rate this question:

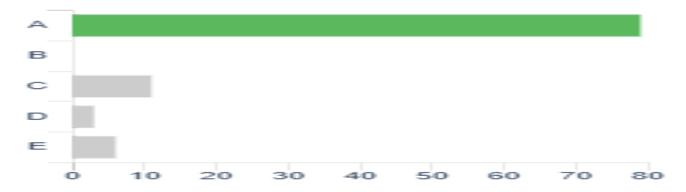
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Aspergillosis	0
Expanded explanations	

A 23-year-old man presents to the Emergency Department two weeks after returning from a holiday with friends to Spain. He admits to unprotected sexual intercourse with multiple partners. He complains of dysuria, low back pain and pain and swelling affecting both knees and his left ankle, as well as conjunctivitis. Examination confirms oligoarthritis of the lower limbs.

Which of the following is the most likely cause of the patient's symptoms?

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A Chlamydia trachomatis

B Herpes simplex

C Neisseria gonorrhoeae

D Shigella sonnei

E Treponema pallidum

Explanation

4

A Chlamydia trachomatis

This patient has the triad of symptoms consistent with reactive arthritis: oligoarthritis, conjunctivitis and dysuria) The most common infective causes of reactive arthritis are *C. trachomatis* and *Chlamydia* pneumoniae. In the event that *Chlamydia* is identified as a causative organism, patients should be treated with an agent such as doxycycline which will not only eradicate the organism but also potentially improve the arthritis symptoms.

B Herpes simplex

Herpes simplex is not recognised as a driver for reactive arthritis. It presents with multiple painful genital ulcers, rather than with the dysuria alone seen here.

C Neisseria gonorrhoeae

Neisseria gonorrhoeae is the next most common cause of reactive arthritis after chlamydial infections have been excluded. It should, of course, be treated if found.

D Shigella sonnei

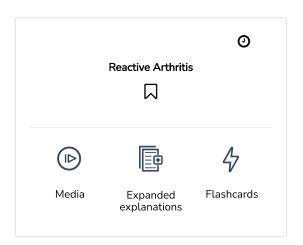
Shigella sonnei is recognised as a cause of reactive arthritis. This is, however, most commonly seen in outbreaks associated with anal intercourse.

E Treponema pallidum

Treponema pallidum leads to syphilis, which is characterised by development of a painless ulcer on the glans penis. It does not fit with the dysuria alone reported here.

53329 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % в C 10 20 30 40 50 60 Q. Answered Flagged Q1 Q2 Q3 Q4

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A 28-year-old man attends the Genetics Clinic to discuss having children. His mother is registered blind and he began to develop symptoms of Leber's hereditary optic neuropathy in his teenage years.

What is the chance of this patient's children suffering from the disease?

Your	answer	was	incoi	rrect

Α	100%

B 75%

C 50%

D 25%

E 0%

Explanation

E 0%

Leber's hereditary optic neuropathy is a mitochondrial disease. The disease leads to impaired glutamate transport and increased reactive oxygen species within affected ganglion cells, causing apoptosis. Idebenone, a short-chain benzoquinone with antioxidant properties, has been shown in clinical trials to slow visual field loss. Men who suffer from a mitochondrial disease cannot pass it to any of their offspring because mitochondrial genes are all inherited from the woman.

A 100%

Mitochondrial DNA is only passed down the female line. As Leber's hereditary optic neuropathy (LHON) is a mitochondrial disorder, the risk of offspring inheriting the disease from an affected father is 0%. In contrast, all children of a woman with the disorder would inherit it.

This percentage of 75% does not fit with the inheritance of LHON, a mitochondrial disorder. The offspring of men with the disorder do not inherit the disease.

C 50%

Mitochondrial genes are only inherited from women. None of this man's offspring will inherit LHON (a mitochondrial disorder).

D 25%

The offspring of a man affected by a mitochondrial disorder do not inherit the disease. A chance of 25% is that of the offspring suffering from an autosomal recessive disorder where each parent is a carrier of the affected gene.

53338 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % в C D 70 10 20 30 40 50 60 Q. Answered Flagged Q1 Q2 Q3

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A 43-year-old man is referred to the Endocrinology Clinic by his General Practitioner. He is concerned because he has gained 6 kg of weight over the past four months, has developed diabetes mellitus and has poorly controlled blood pressure. His blood pressure is 155/95 mmHg, his body mass index is 37 kg/m² and he has obvious abdominal striae.

Investigations:

Investigations	Result	Normal value
Haemoglobin	142 g/l	135–175 g/l
White cell count	7.1×10^{9} /l	$4-11 \times 10^9$ /l
Platelets	199 × 10°/l	$150-400 \times 10^9$ /l
Sodium (Na+)	144 mmol/l	135–145 mmol/l
Potassium (K+)	3.5 mmol/l	3.5–5.0 mmol/l
Bicarbonate	34 mmol/l	22–32 mmol/l
Creatinine	110 μmol/l	50–120 μmol/l

Which of the following is the most useful next investigation?

Your answer was incorrect

Α	Random	cortisol

B Random growth hormone

C Serum insulin growth factor 1

D 24-hour urinary-free cortisol

24-hour urinary 5-hydroxyindoleacetic acid

Explanation



Ε

This patient's clinical phenotype fits well with a diagnosis of Cushing's disease given the weight gain, diabetes, hypertension and metabolic alkalosis on blood testing. 24-hour urinary-free cortisol can be collected as an outpatient and is an ideal initial investigation for Cushing's disease. The reference range is 50-270 nmol/l. Renal disease may cause a false negative 24-hour urine result. A positive result can be followed with appropriate imaging investigation to identify a possible adrenal or pituitary adenoma and measurement of adrenocorticotropic hormone.

A Random cortisol

Random cortisol is not useful as a screening test for Cushing's syndrome as it has a short half life and a diurnal pattern of release. 24 hour urinary-free cortisol is much more useful to diagnose the condition.

B Random growth hormone

Growth hormone has a short half life and a diurnal pattern of release, this means it is not useful as a random measure. Growth hormone is measured repeatedly as part of a glucose tolerance test to diagnose acromegaly.

C Serum insulin growth factor 1

Serum insulin growth factor 1 is produced by the liver in response to growth hormone. It has a long half-life in contrast to growth hormone, which means it can be used as a screening test for acromegaly. Acromegaly does not fit with the clinical picture seen here.

E 24-hour urinary 5-hydroxyindoleacetic acid

5-hydroxyindoleacetic acid is increased in patients with carcinoid syndrome which is characterised by episodes of diarrhoea, flushing and palpitations.

Feedback

Difficulty: Average

Peer Responses %



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Cushing	⊙ Syndrome □
Media	Expanded explanations

A 23-year-old man presents to the Emergency Department with extreme fatigue, shortness of breath on minimal exercise and easy bruising which has increased over the past few days. He recovered from glandular fever around two months ago. His blood pressure is 100/60 mmHg and his heart rate is 98 bpm and regular. He looks pale, with extensive bruising over his arms and legs.

Investigations:

Investigation	Result	Normal value
Haemoglobin	72 g/l	135–175 g/l
White cell count	3.0 × 10°/l	$4-11 \times 10^9$ /l
Platelets	45 × 10 ⁹ /l	150-400 × 10 ⁹ /l
Sodium (Na+)	138 mmol/l	135–145 mmol/l
Potassium (K+)	3.9 mmol/l	3.5–5.0 mmol/l
Creatinine	85 µmol/l	50–120 μmol/l

Which of the following is the most useful investigation?

Your answer was incorrect

A Bone marrow aspirate and trephine biopsy

B Eosin-5'-maleimide binding test

C Immunophenotyping

D Immunoglobulin electrophoresis

E Peripheral lymph node biopsy

Explanation



This patient has aplastic anaemia, which is very rare, with an incidence of 2–3 cases per million population per year in Europe. There are two incidence peaks at 10–25 years and over 60 years. Although up to 80% of cases are idiopathic, 5% of cases occur after viral infection, including Epstein–Barr virus. Bone marrow investigation shows hypocellular bone marrow, with the absence of an abnormal infiltrate or marrow fibrosis. Immunosuppressive therapy with horse anti-thymocyte globulin and stem cell transplant are potential interventions. With supportive therapy alone, mortality approaches 80% at two years.

B Eosin-5'-maleimide binding test

The eosin-5'-maleimide binding test is used in the diagnosis of hereditary spherocytosis. The disease is associated with aplastic crises after parvovirus B19 infection. A longer history of symptoms, however, of haemolytic anaemia would be expected.

C Immunophenotyping

Immunophenotyping by flow cytometry is used mostly in the diagnosis of chronic lymphocytic leukaemia (CLL) to look for typical lymphocyte markers seen in CLL such as CD19, CD23 and CD5.

D Immunoglobulin electrophoresis

Immunoglobulin electrophoresis is most useful in evaluation of potential multiple myeloma, which may lead to anaemia and thrombocytopenia because of extensive bone marrow infiltration. It does not, however, fit with the timescale of symptoms seen here, nor with the age of the patient.

E Peripheral lymph node biopsy

There is no evidence of lymphoma here, which would be the main reason for a lymph node biopsy. Aplastic anaemia post-Epstein–Barr virus infection is more likely to be the cause of this patient's symptoms.

Rate this question:

Previous Question

Feedback

Difficulty: Average

Peer Responses %



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	Aplastic Anaemia	o
		4
Media	Expanded explanations	Flashcards

A 74-year-old woman is admitted to the Emergency Department in complete heart block. Her heart rate is 22 bpm and her blood pressure is 105/82 mmHg.

Which of the following is the most likely finding on examination of the jugular venous pressure?

Α	Absent	<i>v</i> waves

B Cannon a waves

C Exaggerated *x* descent

D Exaggerated *y* descent

E Shallow *x* descent

Explanation



B Cannon a waves

Cannon *a* waves are a prominent feature of complete heart block. They are caused by the right atrium contracting against a closed tricuspid valve. A number of causes are identified, these include:

- atrial flutter
- atrial tachycardia
- complete heart block
- ventricular ectopics
- ventricular tachycardia.

A Absent *v* waves

The v wave corresponds to venous filling in the presence of a closed tricuspid valve. It is exaggerated in patients with tricuspid regurgitation.

Exaggerated x descent

C

The x descent follows the a wave and corresponds to atrial relaxation and filling due to low pressure. Exaggeration of the x descent may be seen in cardiac tamponade.

D Exaggerated y descent

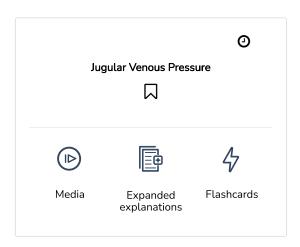
The y descent corresponds to rapid atrial emptying into the ventricle after the tricuspid valve opens.

E Shallow *x* descent

The *a* wave corresponds to right atrial contraction and ends at the same time as the carotid pulse. In complete heart block, cannon *a* waves are seen when the right atrium contracts against a closed tricuspid valve and the *a* descent is very rapid.



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A 72-year-old woman presents to the General Practitioner with large fluid-filled, flaccid blisters, which are itchy and painful. The blisters are particularly prominent over her trunk and the flexural surfaces of all four limbs. She says the itching came first and the rash developed over a few months. The mucous membranes appear to be spared.

Which of the following is the most likely cause of this patient's symptoms?

Your answer was incorrect

A Bullous pemphigoid

B Dermatitis herpetiformis

C Epidermolysis bullosa

D Linear immunoglobulin A disease

E Pemphigus vulgaris

Explanation

❖

A Bullous pemphigoid

Bullous pemphigoid is the most likely cause of large flaccid blisters, with sparing of the mucous membranes, in an elderly patient. It is caused by autoantibodies against hemidesmosomal antigens known as BPAg1 and BPAg2. Triggers include drugs, such as furosemide and omeprazole, and autoimmune conditions, including rheumatoid arthritis and ulcerative colitis. Corticosteroids are the initial intervention of choice.

B Dermatitis herpetiformis

Dermatitis herpetiformis is associated with an itchy vesicular rash which predominantly affects the buttocks and posterior thighs. It is associated with hypersensitivity to gluten.

C Epidermolysis bullosa

Epidermolysis bullosa presents in childhood with painful blisters which occur after minor trauma or even spontaneously. It does not fit with the clinical picture seen here.

D Linear immunoglobulin A disease

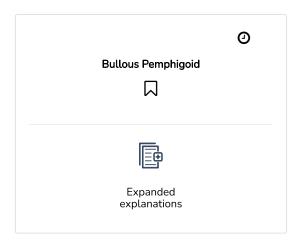
Linear immunoglobulin A disease is more likely to present with clusters of vesicular lesions. They occur most commonly on the trunk in adults.

E Pemphigus vulgaris

Pemphigus vulgaris does present with large flaccid blisters. In contrast to pemphigoid, the likely diagnosis here, the mucous membranes are nearly always affected. It is caused by an autoimmune response to desmoglein (DSG) 1 and DSG3, which are responsible for adhesion keratinocytes.

53344 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % в C D 20 50 80 Q. Answered Flagged Q1 Q2 Q3

Q.	Answered	Flagged
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A 19-year-old woman is referred to the Gastroenterology Clinic with nine months of intermittent abdominal bloating, painful spasms, constipation and diarrhoea. She has not lost any weight. Physical examination is normal and her body mass index is 23 kg/m². Routine bloods are unremarkable.

Which of the following is the optimal way to treat this patient's painful spasms?

Your a	answer was incorrect
А	Amitriptyline
В	Fermentable oligosaccharides
С	Linaclotide
D	Loperamide
Е	Mebeverine
Explai	nation
Е	Mebeverine

A number of antispasmodics exist for the treatment of irritable bowel syndrome. These include alverine, mebeverine and peppermint oil. The exact mechanism of action of mebeverine is not known, but mechanisms may include a decrease in ion channel permeability, blockade of noradrenaline reuptake and a weak local anaesthetic effect. Changes in water absorption, as well as weak antimuscarinic and phosphodiesterase inhibitory effects, may further contribute to its antispasmodic properties.

A Amitriptyline

Low-dose tricyclic antidepressants may be of value in patients with pain related to irritable bowel syndrome which has not responded to antispasmodics.

B Fermentable oligosaccharides

Dietary fermentable oligosaccharides may actually worsen symptoms of irritable bowel syndrome, leading to increased bloating and diarrhoea. Many patients gain benefit from reducing these in their diet.

C Linaclotide

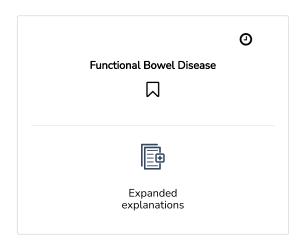
Linaclotide is used as a laxative for irritable bowel syndrome where constipation predominates. It is a secondor third-line therapy for patients with symptoms lasting > 12 months.

D Loperamide

Loperamide is a mu opioid receptor agonist which is used to treat diarrhoea. It may actually worsen abdominal spasms.

53361 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % в C =Ó 10 20 30 40 50 60 Q. Answered Flagged Q1 Q2 Q3 Q4

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A 71-year-old woman is brought to the Emergency Department by her son who is concerned that she may have an abnormal grief reaction. Her husband died three months ago. She says that she talks to him every day, feels perpetually sad and thinks all the time about how he died of cancer. According to the son, she seems preoccupied with his death. Physical examination is unremarkable.

Which of the following is the most likely diagnosis?

Your answer was incorrect

A Adjustment disorder

B Normal grief reaction

C Psychotic depression

D Schizophrenia

E Schizoid personality disorder

Explanation

В

❖

Normal grief reaction

It is normal for patients to experience feelings of loss after the death of a partner, and this patient's symptoms, including preoccupation with the mode of his death, perpetual sadness and talking to him every day, are all considered an appropriate adjustment to loss. Where symptoms are present for six months or more, especially features of preoccupation with the death, difficulty accepting it, bitterness, anger, blame and guilt, this may indicate a persistent complex bereavement disorder which requires specialist involvement.

A Adjustment disorder

Grief may be a cause of adjustment disorder. However, given the short time period between this patient's loss and her symptoms, the picture is consistent with a normal grief reaction.

Psychotic depression

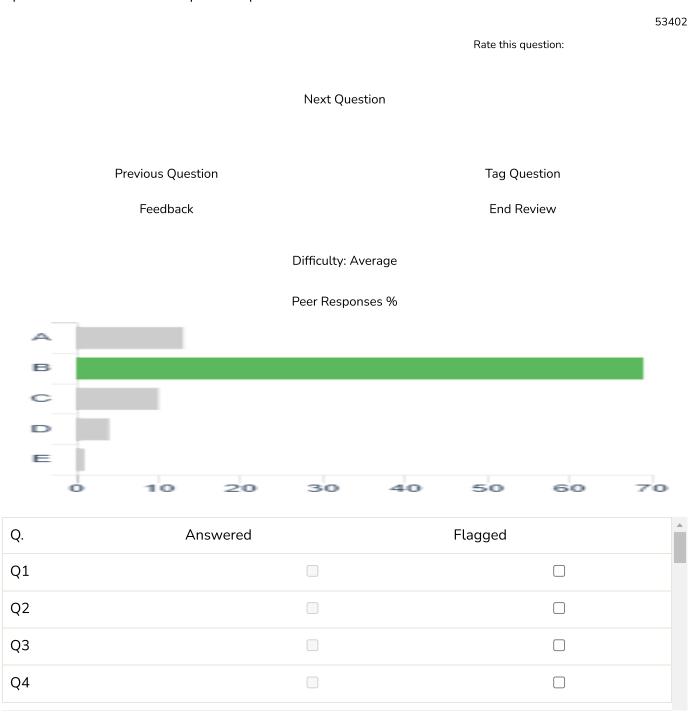
Although this patient experiences talking to the deceased every day, this is considered normal at this stage of loss, and would not be considered indicative of psychotic depression.

D Schizophrenia

Particular features of schizophrenia, including thought broadcasting, external control and primary delusional perception, are absent here, and schizophrenia would be very unusual to present for the first time at this age.

E Schizoid personality disorder

Schizoid personality disorder is a chronic condition characterised by social isolation and indifference to other people. It does not fit with this patient's presentation.



Q.	Answered	Flagged
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A 27-year-old man returns from a teaching trip to Kenya with fevers and lethargy which have worsened over the past two months. He has lost 4 kg in weight over the past four weeks. He is thin, with a body mass index of 21 kg/m². There is hepatosplenomegaly on abdominal examination.

Investigations:

Investigation	Result	Normal value
Haemoglobin	92 g/l	135–175 g/l
White cell count	4.1 × 10 ⁹ /l	$4-11 \times 10^9$ /l
Platelets	120 × 10 ⁹ /l	150-400 × 10 ⁹ /l
Sodium (Na+)	140 mmol/l	135–145 mmol/l
Potassium (K+)	4.5 mmol/l	3.5–5.0 mmol/l
Creatinine	75 µmol/l	50–120 μmol/l

Bone marrow aspirate shows amastigotes.

Which of the following is the most appropriate intervention?

Your answer was incorrect

A Albendazole

B Ketoconazole

C Miltefosine

D Proguanil

E Tinidazole

Explanation



This patient's symptoms with pancytopenia, splenomegaly and amastigotes seen on bone marrow aspiration are consistent with visceral leishmaniasis which is endemic in East Africa. Miltefosine inhibits the synthesis of phosphatidylcholine and affects parasite mitochondrial function. Among other actions, it is also effective in clearing visceral leishmaniasis. Resistance to miltefosine has developed on the Indian subcontinent over the past few years promoting a switch to combination therapies, including stibogluconate, amphotericin and paromomycin.

A Albendazole

Albendazole is an antihelminthic agent which inhibits tubulin polymerisation. It is used as the intervention of choice for threadworm infection.

B Ketoconazole

Although amphotericin is effective in treating leishmaniasis, other antifungal agents such as ketoconazole are not effective.

D Proguanil

Proguanil is used in the treatment of malaria where it acts as an inhibitor of dihydrofolate reductase. It is not used in the treatment of leishmaniasis.

E Tinidazole

Tinidazole is used as a single-dose agent for the treatment of giardiasis. It is reduced by protozoa to produce nitro free radicals, which are thought to account for its activity in clearing infection.

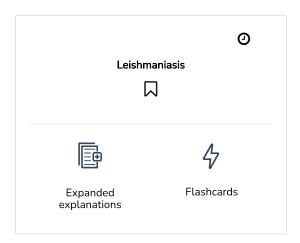
Peer Responses %

Feedback

Difficulty: Average



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The 19-year-old woman presents to the Cancer Genetics Clinic for review. She is the sister of a man who has recently been diagnosed with hereditary non-polyposis colon cancer.

Which of the following cancers is the patient most at risk of?

Your answer was incorrect

A Breast cancer

B Cervical cancer

C Endometrial cancer

D Medullary thyroid cancer

E Ovarian cancer

Explanation

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C Endometrial cancer

Women with the hereditary non-polyposis colon cancer mutation have a 40–60% risk of endometrial cancer. This equals or exceeds their risk of colon cancer. Annual endometrial sampling and transvaginal ultrasound are recommended for women with the syndrome, beginning at age 30–35 years. Around this age, women who have completed their family may also be offered prophylactic total hysterectomy.

A Breast cancer

Breast cancer risk is not significantly increased in hereditary non-polyposis colon cancer versus the other options mentioned here. It is increased in the BRCA cancer syndromes.

B Cervical cancer

The major risk factor for cervical cancer is exposure to oncogenic strains of the human papillomavirus.

Medullary thyroid cancer

Medullary thyroid cancer is associated with the presence of the RET oncogene. The risk is not significantly increased versus the other options given.

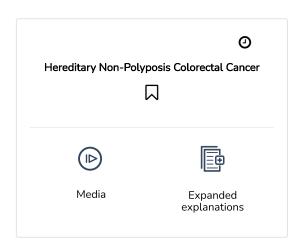
E Ovarian cancer

D

Hereditary non-polyposis colon cancer is an inherited disorder of DNA mismatch repair genes. It is associated with a 12% increased risk of ovarian cancer. This is lower than the increased risk of endometrial cancer.

53396 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % 10 80 Ó 20 30 50 60 Q. Answered Flagged Q1 Q2 Q3 Q4 Q5

Q.	Answered	Flagged	
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A 38-year-old man presents to the General Practitioner with a loss of plantar flexion on the right-hand side. He is unable to press the accelerator in his car.

Which of the following muscles is mainly responsible for plantar flexion?

Α	Gastrocnemius
В	Peroneus brevis
С	Peroneus longus
D	Plantaris
E	Tibialis anterior

Your answer was incorrect

Explanation

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A Gastrocnemius

The gastrocnemius with the soleus muscle does the bulk of the work with respect to plantar flexion of the ankle. The plantaris is the third muscle which provides a small amount of additional power. All three muscles in this group are supplied by the tibial nerve, a branch of the sciatic nerve.

B Peroneus brevis

Like the peroneus longus muscle, the peroneus brevis muscle is responsible for ankle joint eversion. It receives its nerve supply from the superficial fibular nerve.

C Peroneus longus

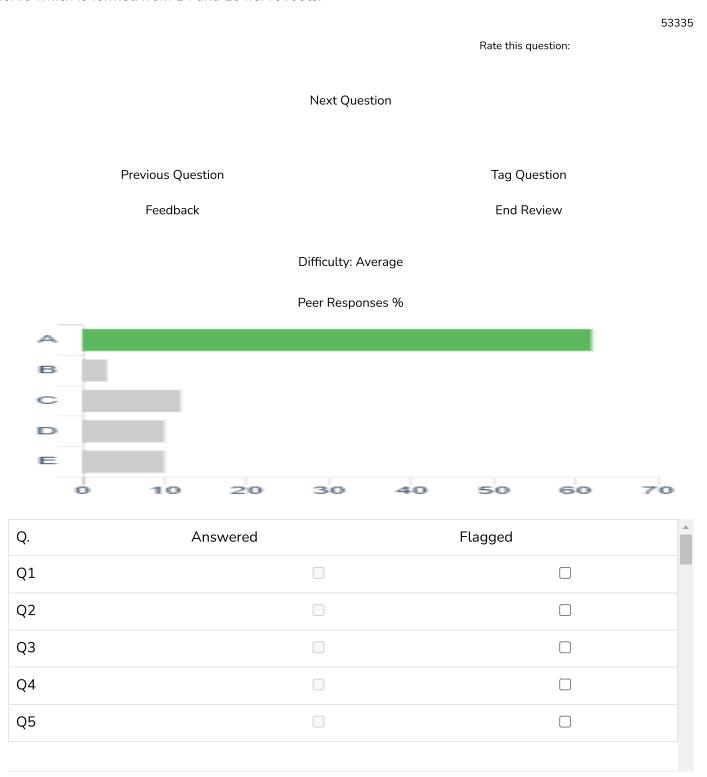
The peroneus longus is found in the lateral compartment of the leg and is responsible for ankle joint eversion. It receives its nerve supply from the superficial fibular nerve.

D Plantaris

The plantaris muscle is a minor partner in plantar flexion, with the gastrocnemius and soleus muscles doing most of the work. It is supplied by the tibial nerve.

E Tibialis anterior

The tibialis anterior is the primary muscle which facilitates ankle dorsiflexion. It is supplied by the deep fibular nerve which is formed from L4 and L5 nerve roots.



Q.	Answered	Flagged
Q6		
Q7		

A phase 2 trial of a new medication for migraine is conducted, with 40 patients per arm. In the 40 patients given treatment A, there was an incidence of five headaches over a four-week period. In the 40 patients given treatment B, there was an incidence of 22 headaches over a four-week period.

Which of the following is the most appropriate statistical test?

Your answer was incorrect

A Analysis of covariance

B Chi-squared test

C Mann–Whitney U-test

D Multiple regression analysis

E Student's t-test

Explanation

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B Chi-squared test

The chi-squared test is the optimal way to compare the distribution of a categorical variable in one sample vs another. In this case, the presence of headache or no headache across two groups of patients with migraine who are exposed to different treatments. Once the value of the chi-squared test is calculated, it can be cross-referenced against a probability table which provides a P value associated with it (in practice, this is done by most statistical computer programmes).

A Analysis of covariance

Analysis of covariance is designed to examine the effect of controlled and uncontrolled independent variables on an observed mean.

C Mann-Whitney U-test

The Mann–Whitney U-test is used to compare two samples of continuous variable data which are not normally distributed.

D Multiple regression analysis

Multiple regression analysis is used to determine which of several independent variables has the biggest impact on a single dependent variable.

E Student's t-test

The Student's t-test is used to determine whether the mean of a sample population has a value specified under the null hypothesis. It is not useful for the categorical variable analysis required here.

53341 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % в C =Ó 10 20 30 40 Q. Answered Flagged Q1 Q2 Q3 Q4

Q.	Answered	Flagged
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A 62-year-old man is reviewed in the Emergency Department with right-sided facial and arm weakness and speech disturbance that has resolved after two hours. He has hypertension and type II diabetes, which are treated with ramipril and metformin, respectively. His blood pressure is 155/92 mmHg and his heart rate is 75 bpm and regular.

Investigations:

Investigation	Result	Normal value
Haemoglobin	137 g/l	135–175 g/l
White cell count	9.2 × 10 ⁹ /l	$4-11 \times 10^9$ /l
Platelets	397 × 10 ⁹ /l	150-400 × 10°/l
Sodium (Na+)	142 mmol/l	135–145 mmol/l
Potassium (K+)	4.1 mmol/l	3.5–5.0 mmol/l
Creatinine	135 µmol/l	50–120 μmol/l
Glycated haemoglobin	52 mmol/mol	< 48 mmol/mol

Computed tomography head reveals no intracranial haemorrhage.

Which of the following is the most appropriate next step?

Your answer was incorrect

Α	Amlodipine 5 mg
	/ tilltouipillo o illig

Aspirin 300 mg

В

This patient has symptoms of a transient ischaemic attack (TIA) in the carotid territory with right-sided weakness and speech disturbance. These have resolved and the computed tomography head shows no haemorrhage. Therefore, high-dose aspirin at 300 mg dose is indicated and he should be referred to the specialised TIA Clinic for next-day assessment where further treatment will be considered (switching to clopidogrel 75 mg or dual antiplatelets for three weeks, then clopidogrel 75 mg long term). He has an ABCD2 score > 4, which puts him at a very high risk of a completed stroke. Further investigations include an electrocardiogram, with follow-on prolonged ambulatory monitoring if normal, and carotid duplex scanning. He should be informed not to drive for one month.

A Amlodipine 5 mg

This patient's blood pressure is only moderately elevated. Therefore, there is no urgent indication for the initiation of further antihypertensive therapy.

C Clopidogrel 75 mg

Initial treatment in a non-specialist setting (ie not in a Stroke Unit) for TIA consists of initiation of aspirin 300 mg daily. When seen in the TIA Clinic, this will be reviewed. Aspirin offers a lower risk of adverse events (largely haemorrhage) than clopidogrel, so it is advocated where the false positive diagnosis rate of TIA is higher.

D Dapagliflozin 10 mg

Dapagliflozin may well further improve this patient's glucose control and it has been shown to reduce heart failure events and slow the progression of renal impairment. At this stage, aspirin is the most important intervention.

E Insulin sliding scale

Although it was thought that intensive insulin treatment at the time of a vascular event could improve outcomes, there is currently no evidence to suggest its benefit for post-myocardial infarction therapy.

53370

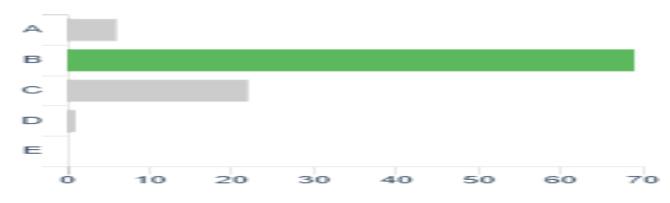
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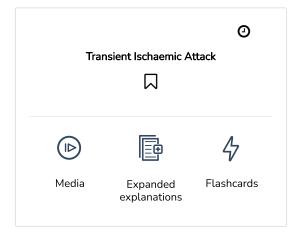
Previous Question Tag Question

Feedback End Review

Peer Responses %



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A 48-year-old man who has suffered a myocardial infarction presents to the General Practitioner and wants to discuss his prognosis. He has some persistent chest pain post myocardial infarction and has continued to smoke five cigarettes per day. His ejection fraction is 28%.

Which of the following is the most important adverse prognostic factor post-myocardial infarction?

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Α	Age	48

B Ejection fraction 28%

C Male sex

D Persistent angina

E Smoking

Explanation

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B Ejection fraction 28%

Mortality in patients with an ejection fraction of below 30% is > 80% some 15 years after myocardial infarction. Across available cohort study data, this is the strongest predictor of poor outcomes.

A Age 48

Younger age is associated with better outcomes after myocardial infarction. Given this patient is 48 years old this is expected to have a positive impact on his prognosis.

C Male sex

After adjustment for other risk factors, no significant difference was seen with respect to outcomes for men, compared to women, post-myocardial infarction.

D Persistent angina

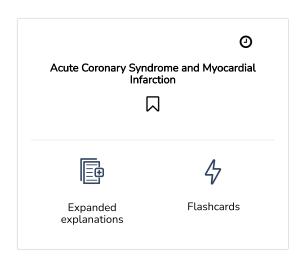
Persistent angina is seen in one-third of patients post percutaneous coronary intervention for acute myocardial infarction. Although it should be addressed with medical therapy and/or further vascular intervention, it is not a strong negative prognostic indicator compared to low ejection fraction.

E Smoking

Although persistent smoking does negatively impact outcomes post-myocardial infarction the major factor which predicts both symptomatic heart failure and sudden cardiac death is an ejection fraction < 30%.

53307 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % в 30 10 50 Ó 20 40 Q. Answered Flagged Q1 Q2 Q3 Q4 Q5 Q6

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A 76-year-old man presents to the Dermatology Clinic with a pearlescent papule on his nose that has been growing slowly over the past three months. There are a number of telangiectatic vessels over the surface of the lesion.

What is the most likely cause of the lesion?

Your answer was incorrect

A Amelanotic melanoma

B Basal cell carcinoma

C Keratoacanthoma

D Solar keratoses

E Squamous cell carcinoma

Explanation

Α

Ö

B Basal cell carcinoma

This pearlescent lesion with telangiectatic vessels which is slow-growing on a sun-exposed area is typical of a basal cell carcinoma. Over time, it becomes ulcerated, with a raised edge to the ulcer, known as a rodent ulcer. Surgical excision with a 4 mm margin is the intervention of choice. Where surgical excision cannot be achieved, radiotherapy or topical immunotherapy are potential options.

Amelanotic melanoma

The slow growth, coupled with a well-circumscribed nodular lesion seen here, is more consistent with a basal cell carcinoma. An amelanotic melanoma would be expected to demonstrate more rapid disordered growth than that seen here.

C Keratoacanthoma

Keratoacanthomas grow rapidly as a flesh-coloured nodule, often with a central keratin plug. They then involute and heal over the course of 4–6 months.

D Solar keratoses

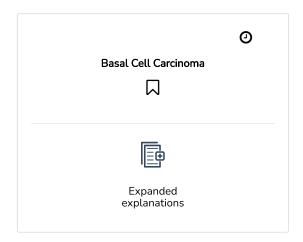
Solar keratoses present as a roughened area of skin on a sun-exposed area such as the scalp or face, with superficial skin scaling and erythema.

E Squamous cell carcinoma

Squamous cell carcinomas more commonly present as flat, erythematous scaling lesions or as rapidly growing nodules, without the telangiectasia seen here.

53345 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % в C =10 20 30 40 50 60 Q. Answered Flagged Q1 Q2 Q3 Q4

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A 19-year-old student presents to the Emergency Department two days after returning from a field trip to Kenya. She has severe headache, fever and muscle aches, abdominal pain and diarrhoea, but is currently able to maintain her fluid intake. Her temperature is 38.2 °C, blood pressure 122/82 mmHg and heart rate 89 bpm and regular. Her abdomen is soft, but generally tender.

Investigations:

Investigation	Result	Normal value
Haemoglobin	95 g/l	115–155 g/l
Thick and thin film	Falciparum malaria parasitaemia estimated at 1%	
White cell count	9.9×10^{9} /l	411 × 10 ⁹ /l
Platelets	95 × 10 ⁹ /l	150-400 × 10 ⁹ /l
Sodium (Na+)	142 mmol/l	135–145 mmol/l
Potassium (K+)	4.9 mmol/l	3.5–5.0 mmol/l
Creatinine	132 µmol/l	50–120 μmol/l

Which of the following is the most appropriate intervention?

Your answer was incorrect

A Intravenous artesunate

B Intravenous quinine

C Oral artemether and lumefantrine

D Oral chloroquine

E Oral mefloquine

Explanation



This patient has uncomplicated falciparum malaria, with a low level of parasitaemia at 1%. As such, an oral artemesin preparation, such as artemether and lumefantrine combination tablets, is indicated. Both components act at the level of the food vacuole of the malarial parasite where they are thought to interfere with the conversion of haem, a toxic intermediate produced during haemoglobin breakdown, to non-toxic haemozoin. Lumefantrine is thought to interfere with the polymerisation process. Artemether generates reactive metabolites as a result of the interaction between its peroxide bridge and haem iron. Both artemether and lumefantrine have a secondary action involving inhibition of nucleic acid and protein synthesis within the malarial parasite.

One tablet contains 20 mg artemether and 120 mg lumefantrine. In adults, a course of therapy is 24 tablets given over a period of 60 hours.

A Intravenous artesunate

Artesunate is given for more severe falciparum at a dose of 2.4 mg/kg intravenously at time 0, 12 and 24 hours, then once daily thereafter.

B Intravenous quinine

Intravenous quinine is considered for severe malaria when artesunate is not available. In this case, in uncomplicated disease, artemether and lumefantrine tablets can be used.

D Oral chloroquine

Chloroquine resistance is very high in areas where falciparum malaria is endemic. As such, it is not a recommended intervention here.

E Oral mefloquine

In areas where falciparum malaria is endemic, such as Kenya, use of mefloquine-based treatment regimens is not recommended. Artemisinin-based regimens are preferred due to the high efficacy, tolerability, and ability to reduce ongoing transmission.

53379

Rate this question:

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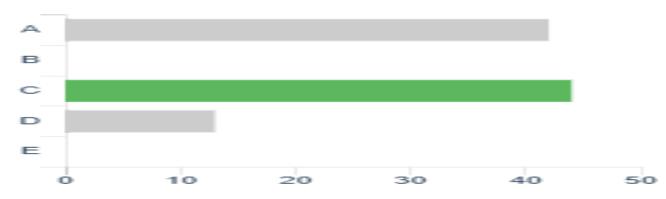
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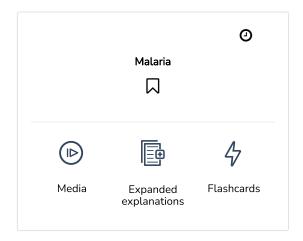
End Review

Difficulty: Average

Peer Responses %



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A 72-year-old man is admitted to the Acute Medical Ward with a urinary tract infection. He has advanced Parkinson's disease and metastatic gastric cancer and is agitated and confused. His temperature is 37.9 °C, blood pressure 110/70 mmHg and heart rate 94 bpm and regular. He appears to have visual hallucinations and is hitting out and is at risk of falling.

Investigations:

Investigation	Result	Normal value
Haemoglobin	89 g/l	135–175 g/l
White cell count	9.7 × 10 ⁹ /l	$4-11 \times 10^9$ /l
Platelets	181 × 10 ⁹ /l	150-400 × 10 ⁹ /l
Sodium (Na+)	142 mmol/l	135–145 mmol/l
Potassium (K+)	4.9 mmol/l	3.5–5.0 mmol/l
Creatinine	195 µmol/l	50–120 μmol/l

Which of the following is the most appropriate way to control this patient's agitation?

Your answer was incorrect

A Clozapine

B Haloperidol

C Lorazepam

D Olanzapine

E Risperidone

Explanation



For treatment of acute agitation in patients with Parkinson's disease, lorazepam is the preferred intervention. It can be given at a dose of 0.5 or 1 mg orally or intramuscularly, every four hours, up to a maximum dose of 3 mg in a 24-hour period.

A Clozapine

Clozapine is effective as chronic therapy for psychosis in Parkinson's disease, although regular monitoring of the full blood count is essential, which limits its use.

B Haloperidol

Haloperidol is not recommended in Parkinson's disease because it can significantly worsen any underlying movement disorder.

D Olanzapine

Like risperidone, olanzapine can significantly worsen symptoms of Parkinsonism. Both clozapine and quetiapine are associated with a lower risk of movement disorder in patients with Parkinson's disease.

E Risperidone

Although risperidone is an atypical antipsychotic, it does cause worsening of movement disorder in Parkinson's disease, meaning that it should be avoided here.

Rate this question:

Next Question

Previous Question

Feedback

Difficulty: Average

Peer Responses %



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Parkinsor	nism and Parkinsor	⊙ n's Disease
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Media	Expanded explanations	Flashcards

A 62-year-old man is reviewed in the Rheumatology Clinic after having suffered an episode of Stevens-Johnson syndrome after starting allopurinol therapy for gout. He has had a previous inferior myocardial infarction.

Which of the following is the most appropriate long-term therapy for this patient's gout?

Α	Benzbromarone
В	Canakinumab
С	Febuxostat
D	Low-dose colchicine
Е	Rasburicase

Explanation

- 80

D Low-dose colchicine

Your answer was incorrect

In this case with a previous myocardial infarction and potential crossover of reactions of Stevens-Johnson syndrome from allopurinol to febuxostat, low-dose colchicine is the most appropriate intervention. A dose of 0.5–1 mg daily or 0.6–1.2 mg daily is usually administered, depending on which preparation is available. Dose reduction or discontinuation is required in renal impairment. Data suggest that colchicine not only reduces the risk of gout flares, but it may also impact on cardiovascular events.

A Benzbromarone

Benzbromarone is a uricosuric agent used in patients who fail to gain control of uric acid levels on a xanthine oxidase inhibitor alone. In this situation, it is not a preferred first-line intervention. It can only be prescribed by hospital specialists.

B Canakinumab

Although canakinumab is effective in reducing cardiovascular events and treating gout flares, cost and convenience of administration mean colchicine is the preferred option here.

C Febuxostat

Febuxostat is an alternative xanthine oxidase inhibitor to allopurinol. However, it has a small negative impact on the risk of cardiovascular events and may also have crossover reactions in patients who are sensitive to allopurinol.

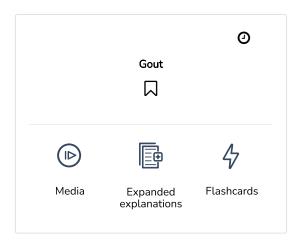
E Rasburicase

Rasburicase is a recombinant form of urate oxidase. It is used in the treatment and prevention of acute urate nephropathy related to tumour lysis in patients treated with chemotherapy for a haematological malignancy.

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Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % в C =20 30 10 Q. Answered Flagged Q1 Q2 Q3

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A 64-year-old woman presents to the Emergency Department with shortness of breath, stridor and a hives-like rash over her upper chest. This is the second time it has happened to her and she is concerned it may be an episode of anaphylaxis. She responds to intramuscular adrenaline and hydrocortisone.

Which blood test may be useful in confirming an allergic reaction?

Your answer was incorrect

A Complement C3

B Cortisol

C Eosinophils

D Mast cell tryptase

E Prolactin

Explanation

Ö

D Mast cell tryptase

Mast cell tryptase is a marker of anaphylaxis and may be useful where there is ambiguity as to the diagnosis. Where anaphylaxis treatment is given, a sample should be taken as soon as possible afterwards. Ideally it should be taken within 1–2 hours after an anaphylaxis episode and before four hours have passed. Mast cell tryptase is released by mast cell degranulation. It is important to note, however, that a negative result does not completely exclude anaphylaxis.

A Complement C3

Although acute anaphylaxis is associated with complement depletion, low levels of C3 are a very non-specific marker of active inflammation.

B Cortisol

Cortisol is produced as part of the stress response. However, it is non-specific and has a short half-life, meaning that a normal level does not confirm or exclude an allergic reaction.

C Eosinophils

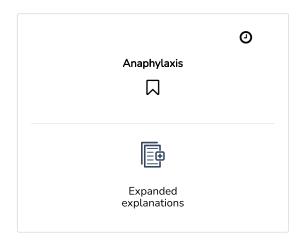
Eosinophils are chronically elevated in patients with extrinsic allergic asthma and those with parasitic infection. A rise in eosinophils is not necessarily seen in association with anaphylaxis.

E Prolactin

A rise in prolactin level is seen after an epileptic seizure. It may be useful to measure its level to confirm seizure activity.

53340 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % в Q. Answered Flagged Q1 Q2 Q3 Q4

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A 72-year-old man who has advanced chronic obstructive pulmonary disease is reviewed in the Emergency Department 30 minutes after presenting with an acute exacerbation. He is not responding to continuous nebulisers. He takes a combination inhaler with an inhaled corticosteroid and roflumilast. He also has at home oxygen. His blood pressure is 132/82 mmHg and his heart rate is 92 bpm and regular. His chest is hyperexpanded and there is poor air entry. He has quiet wheeze on auscultation.

Investigations:

Investigation	Result	Normal value
Haemoglobin	152 g/l	135–175 g/l
White cell count	307 × 10 ⁹ /l	$4-11 \times 10^9$ /l
Platelets	307 × 10 ⁹ /l	150-400 × 10 ⁹ /l
Sodium (Na+)	140 mmol/l	135–145 mmol/l
Potassium (K+)	3.9 mmol/l	3.5–5.0 mmol/l
Creatinine	92 µmol/l	50–120 μmol/l
рН	7.2	7.35–7.45
p(O ₂) (35% oxygen)	9.1 kPa	11.01-4.4 kPa
p(CO ₂)	7.9 kPa	4.6–6.4 kPa

Which of the following is the most appropriate next step?

Your answer was incorrect

А	Intravenous aminophylline
В	Intravenous doxapram
С	Intravenous sabutamol
D	Intubation and ventilation
Е	Non-invasive ventilation

Ε

Non-invasive ventilation

This patient is acidotic, with carbon dioxide retention. Although mechanical ventilation should be considered in patients with pH below 7.25, this patient has advanced chronic obstructive pulmonary disease, meaning that escalation to the Intensive Therapy Unit and invasive ventilation may not be indicated. According to British Thoracic Society guidelines, there is no pH threshold below which non-invasive ventilation may still be of benefit, making this the most appropriate intervention here. It will serve to reduce his $p(CO_2)$, improving acidosis and reversing the vicious circle of increased acidosis and worsening respiratory muscle weakness.

A Intravenous aminophylline

The patient is adequately treated with beta-agonist therapy. Aminophylline may only serve to drive down the potassium level and increase the risk of cardiac rhythm disturbance.

B Intravenous doxapram

Doxapram is a respiratory stimulant that is inferior to non-invasive ventilation (NIV) in this situation. As such, a trial of NIV is the most appropriate next option.

C Intravenous sabutamol

This patient has been adequately treated with nebulised bronchodilator therapy. Giving intravenous salbutamol only serves to increase the risk of cardiac arrhythmia.

D Intubation and ventilation

Although intubation and ventilation may be appropriate for some patients, in this case with advanced chronic obstructive pulmonary disease, progression to NIV is the preferred option.

Rate this question:

Next Question

Previous Question

Feedback

End Review

Difficulty: Average

Peer Responses %

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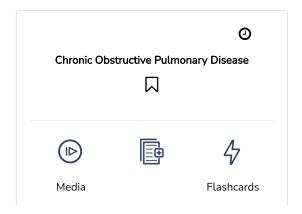
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& External Links

BTS/ICS Guidelines for the Ventilatory Management of Acute Hypercapnic Respiratory Failure in Adults

brit-thoracic.org.uk/document-library/guidelines/niv/btsics-guideline-for-the-ventilatory-management-of-acute-hypercapnic-respiratory-f... (https://www.brit-thoracic.org.uk/document-library/guidelines/niv/btsics-guideline-for-the-ventilatory-management-of-acute-hypercapnic-respiratory-failure-in-adults/)



10

20

Expanded explanations

A 71-year-old man presents to the General Practitioner complaining of headaches, itching, lethargy and night sweats over the past three months. He has a ruddy complexion. His blood pressure is 159/89 mmHg and his heart rate is 80 bpm and regular. There is marked splenomegaly on abdominal palpation.

Investigations:

Investigation	Result	Normal value
Haemoglobin	188 g/l	135–175 g/l
White cell count	13.2 × 10°/l	411 × 10 ⁹ /l
Platelets	421 × 10 ⁹ /l	150400 × 10°/l
Sodium (Na+)	141 mmol/l	135145 mmol/l
Potassium (K+)	5.1 mmol/l	3.55.0 mmol/l
Creatinine	119 µmol/l	50–120 μmol/l

Which of the following is the most useful next investigation?

Your answer was incorrect

A Abdominal ultrasound scan

B Bone marrow biopsy

C JAK2 mutation testing

D Leukocyte alkaline phosphatase

E Pulse oximetry

Explanation



JAK2 mutation testing

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JAK2 mutations lead to the production of JAK2 protein, which is constitutively activated. This drives an increased blood cell longevity and production, leading to an overall increase in haemoglobin, white cell count and platelet count. The V617F mutation is found in approximately 96% of people with primary polycythaemia. Around 3% of affected individuals have a mutation in the exon 12 region of the JAK2 gene. Significantly elevated haemoglobin or red cell mass and JAK2 mutations are the major criteria for diagnosing primary polycythaemia.

A Abdominal ultrasound scan

An abdominal ultrasound will merely confirm the presence of splenomegaly. It will not help confirm the diagnosis of primary polycythaemia.

B Bone marrow biopsy

Bone marrow biopsy will show hypercellularity in primary polycythaemia. However, it is not required to confirm the diagnosis.

D Leukocyte alkaline phosphatase

Leukocyte alkaline phosphatase above 100 U is a marker of primary polycythaemia. However, JAK2 mutation testing is more specific to the condition.

E Pulse oximetry

There is no indication in the vignette that this patient has chest disease as a driver for polycythaemia. Secondary polycythaemia is also usually associated with an isolated rise in haemoglobin level.

Rate this question:

Next Question

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Feedback

Difficulty: Average

Peer Responses %



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	Polycythaemia Ver	⊙
II ⊳ Media	Expanded explanations	47 Flashcards

A 28-year-old woman presents to the Emergency Department with nausea, vomiting and easy bruising. She has taken an overdose of 60×500 mg paracetamol tablets four days ago. Her blood pressure is 110/80 mmHg and her heart rate is 95 bpm and regular. She is tender in the right upper quadrant on abdominal palpation.

Investigations:

Investigation	Result	Normal value
Haemoglobin (Hb)	110 g/l	115–155 g/l
White cell count	11.5×10^{9} /l	$4-11 \times 10^9$ /l
Platelets	75 × 10 ⁹ /l	150-400 × 10 ⁹ /l
Sodium	141 mmol/l	135–145 mmol/l
Potassium	3.6 mmol/l	3.5–5.0 mmol/l
Creatinine	135 µmol/l	50–120 μmol/l
рН	7.28	7.35–7.45
International normalised ratio	4.9	< 1.2
Alanine aminotransferase	1235 U	1–40 U

Which of the following features is most consistent with the urgent referral for a liver transplant?

Your answer was incorrect

Α	Alanine aminotransferase 1235 U
В	International normalised ratio 4.9
С	pH 7.28
D	Platelets 75 × 10 ⁹ /l

E White cell count 11.5×10^9 /l

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pH 7.28

Kings' criteria for urgent referral for liver transplant include arterial pH < 7.30, international normalised ratio > 1.5, creatinine greater 300 µmol/l and grade III or IV hepatic encephalopathy. In this case, the pH below 7.30 is a strong driver for liver transplant referral. Other criteria that can be considered include lactate levels above 3.5 mmol/l within four hours of fluid resuscitation and serum phosphate above 1.2 mmol/l between 48 and 96 hours after overdose.

A Alanine aminotransferase 1235 U

A significant rise in transaminases is expected for this patient and is indicative of hepatocellular necrosis. Transaminases are not, however, predictive of outcomes.

B International normalised ratio 4.9

Elevated international normalised ratio is included as one of the criteria for liver transplant referral, although a level above 6.5 drives urgent referral.

D Platelets 75×10^9 /l

Platelets of 75 are consistent with liver impairment but they are not part of the prognostic indicators for liver transplant referral.

E White cell count 11.5×10^9 /l

Although this patient's white cell count is above the upper limit of normal, white blood count does not form part of the Kings' referral criteria for liver transplant in paracetamol toxicity.

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Rate this question:

Next Question

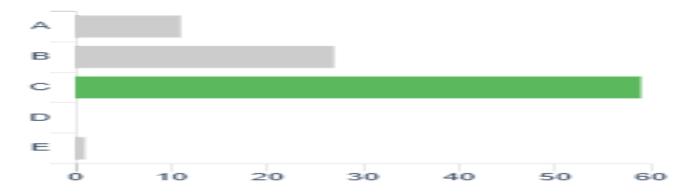
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A 23-year-old man is referred to the Cardiology Clinic for review. He has increased shortness of breath and decreased exercise tolerance over the last five months. Current therapy includes infliximab and naproxen for severe lower back pain and stiffness thought to be due to ankylosing spondylitis.

Which of the following is most likely to be found on auscultation of the heart?

Your answer was incorrect

Δ	Farly	diastolic	murmur in	the thi	rd or fourth	n intercostal	snace to	the le	ft of the	sternum
$\overline{}$	Larty	ulastotic	mummu m	uie uii	ra or rourd	Tillercostat	. Space to	trie te	it of the	Sterrium

- B Ejection systolic murmur best heard in the second intercostal space to the right of the sternum
- C | Ejection systolic murmur best heard at the upper left sternal border
- D Low pitched diastolic murmur loudest at the apex
- E Pan systolic murmur loudest at the apex

Explanation

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Early diastolic murmur in the third or fourth intercostal space to the left of the sternum

Aortic regurgitation is seen in around 10% of patients with ankylosing spondylitis. It is associated with an early diastolic murmur heard best with the patient sitting forward over the third or fourth intercostal space to the left of the sternum. There is little or no radiation. Ankylosing spondylitis is also associated with cardiac conduction defects in up to 30% of patients. Where aortic root dilatation is not seen patients may be managed medically at least initially.

B Ejection systolic murmur best heard in the second intercostal space to the right of the sternum

Ejection systolic murmur is best heard in the second intercostal space to the right of the sternum and is the typical murmur of aortic stenosis, which is not associated with ankylosing spondylitis. Aortic stenosis is seen most commonly in patients with a congenital bicuspid aortic valve.

C Ejection systolic murmur best heard at the upper left sternal border

An ejection systolic murmur best heard at the upper left sternal border is consistent with pulmonary stenosis, which is most often congenital in origin.

D Low pitched diastolic murmur loudest at the apex

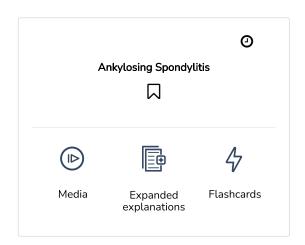
A low-pitched diastolic murmur loudest at the apex is consistent with mitral stenosis, which is most frequently seen in association with rheumatic heart disease.

E Pan systolic murmur loudest at the apex

A pan systolic murmur loudest at the apex is indicative of mitral regurgitation. It is seen post myocardial infarction and in patients with connective tissue disease.

53306 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % в C 10 20 30 40 O Q. Answered Flagged Q1 Q2 Q3 Q4

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A 29-year-old woman who has bipolar disease is referred to the Endocrine Clinic with polyuria and polydipsia. She has to drink 6 litres of water per day to stop being thirsty. Investigations reveal urine osmolality post-water deprivation at 821 mOsm/kg (normal value > 800 mOsm/kg) and urine osmolality post-water deprivation and desmopressin is 832 mOsm/kg (normal value > 800 mOsm/kg).

Which of the following is the most likely diagnosis?

Your answer was incorrect

A Cranial diabetes insipidus

B Diuretic abuse

C Nephrogenic diabetes insipidus

D Partial cranial diabetes insipidus

E Primary polydipsia

Explanation

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Primary polydipsia

Urine osmolality is normal post-water deprivation and post-administration of desmopressin (DDAVP). This fits with a diagnosis of primary polydipsia, which is common in patients with psychiatric disorders. If urine failed to concentrate post-fluid deprivation and then the osmolality increased after DDAVP administration, then cranial diabetes insipidus would be the likely diagnosis. If it failed to concentrate after fluid deprivation and post-DDAVP administration, then nephrogenic diabetes insipidus is likely.

A Cranial diabetes insipidus

Cranial diabetes insipidus leads to failure to concentrate urine after water deprivation, with improvement after desmopressin (DDAVP) is administered.

B Diuretic abuse

Diuretic abuse leads to a similar picture to cranial diabetes insipidus, with difficulty concentrating urine and improvement in urine concentration after DDAVP administration.

C Nephrogenic diabetes insipidus

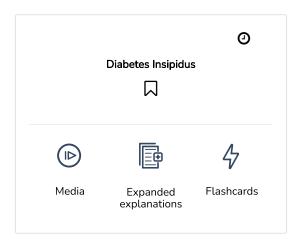
Nephrogenic diabetes insipidus results in the inability to concentrate urine despite water deprivation and after administration of DDAVP.

D Partial cranial diabetes insipidus

Partial cranial diabetes insipidus results in the inability to concentrate urine despite water deprivation, with improvement after DDAVP administration.

53347 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % Ó 10 20 30 40 50 Q. Answered Flagged Q1 Q2 Q3 Q4

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A 78-year-old woman presents to the General Practitioner. She is currently treated with ceftriaxone for meningitis. The microscopy culture and sensitivity report has now confirmed *Listeria* infection.

Which of the following is the most appropriate antibiotic regimen?

Your	answer	was in	correct

A Add amoxicillin

B Add gentamicin

C Continue ceftriaxone

D Switch to amoxicillin and gentamicin

E Switch to linezolid and flucloxacillin

Explanation

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D Switch to amoxicillin and gentamicin

For patients with evidence of widespread Listeria infection, including in the central nervous system, the combination of gentamicin and amoxicillin is preferred. Both drugs are given intravenously. Gentamicin may be discontinued after the first week, although amoxicillin should be continued for at least three weeks. Glucocorticoids are not of benefit in the treatment of Listeria meningitis. The elderly and pregnant women are at increased risk of Listeria infection, and unpasteurised soft cheeses are recognised as a potential cause of infection.

A Add amoxicillin

Although amoxicillin has coverage against *Listeria*, ceftriaxone does not. Switching to amoxicillin and gentamicin is, therefore, a better option.

B Add gentamicin

This patient is being treated for meningitis with ceftriaxone which does not treat listeria infection. Switching to amoxicillin and gentamicin is a better option.

C Continue ceftriaxone

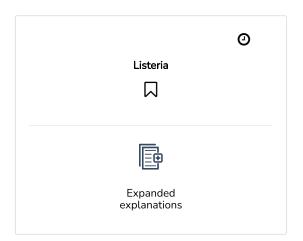
Cephalosporins do not have activity against *Listeria*. As such, continuing ceftriaxone is not an option for this patient.

E Switch to linezolid and flucloxacillin

Linezolid and flucloxacillin are both anti-staphylococcal agents. They do not have significant activity against Listeria infection.

53371 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % в C 10 20 30 40 O Q. Answered Flagged Q1 Q2 Q3 Q4

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A 42-year-old woman is admitted to the Emergency Department with extreme fatigue. She says that her legs are getting progressively weaker; she is now unable to mobilise and is dyspnoeic if she lies flat in bed. She suffered from an episode of gastroenteritis some 2–3 weeks ago. Her mother died of a stroke some six weeks ago. Her sitting blood pressure is 105/70 mmHg and her heart rate is 78 bpm and regular. She has a 4/5 power weakness affecting both lower limbs, with depressed reflexes bilaterally.

Which of the following is the most likely diagnosis?

Your answer was incorrect

A Botulism

B Conversion disorder

C Guillain-Barré syndrome

D Myasthenia gravis

E Polymyositis

Explanation

❖

Guillain–Barré syndrome

This patient has ascending flaccid paralysis, with depressed reflexes beginning 2–3 weeks after an episode of gastroenteritis. This is consistent with a diagnosis of Guillain–Barré syndrome. *Campylobacter* infection, cytomegalovirus and Epstein–Barr virus are just three of a number of infections known to trigger the disease. A lumbar puncture showing a rise in cerebrospinal fluid protein is suggestive of the diagnosis and forced vital capacity monitoring is required to assess the prognosis and the need for mechanical ventilatory support. Management is with plasma exchange or the use of intravenous immunoglobulin.

A Botulism

Botulism begins with central weakness, rather than the peripheral weakness seen here. Symptoms also generally begin 1–2 days after eating contaminated food.

Conversion disorder

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Although this patient has had a psychological stressor with the recent death of her mother, the neurological symptoms can be most easily explained by an underlying diagnosis of Guillain–Barré syndrome.

D Myasthenia gravis

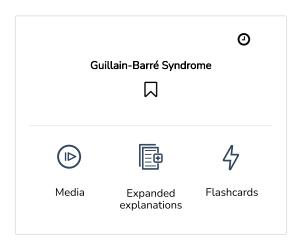
Myasthenia gravis usually presents with central weakness with eye movements often first affected. It has a much more prolonged onset than that seen here.

E Polymyositis

Polymyositis leads to proximal, rather than ascending, muscle weakness. There may also be muscle pain and there is a rise in creatine kinase level due to muscle cell degradation.

53390 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % Q. Answered Flagged Q1 Q2

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An 18-year-old man is referred to the Ophthalmology Department with loss of night vision and progressive loss of peripheral vision. He reports that his father had similar symptoms at the same age and lost his vision completely a few years later. Fundoscopy reveals bilateral changes with dispersion and aggregation of retinal pigment, which has the appearance of bone spicules.

Which of the following is the most likely diagnosis?

Your answer was incorrect

A Batten syndrome

B Friedreich's ataxia

C Leber's hereditary optic atrophy

D McArdle disease

E Retinitis pigmentosa

Explanation

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E Retinitis pigmentosa

The clinical picture here is typical of that seen in retinitis pigmentosa where there is progressive loss of night vision followed by loss of visual acuity which begins peripherally. Complete loss of vision is uncommon. Around 30–40% of cases of retinitis pigmentosa are autosomal dominant; 50–60% are autosomal recessive, and around 5–15% are X-linked in inheritance. Autosomal dominant retinitis pigmentosa appears to have the slowest progression, whereas in X-linked retinitis pigmentosa, central vision is usually lost by the third decade.

A Batten syndrome

Batten syndrome has an onset of action between the age of five and ten years. There is rapid deterioration of vision, and progressive deterioration of intellect occurs more slowly.

B Friedreich's ataxia

Friedreich's ataxia is associated with abnormal movements not seen here. The retinal appearance is, however, consistent with retinitis pigmentosa in patients with Friedreich's ataxia.

C Leber's hereditary optic atrophy

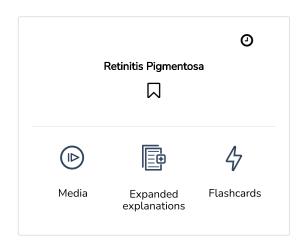
Leber's hereditary optic atrophy begins with painless clouding and blurring of vision, which can affect one or both eyes, and worsens over a period of weeks or months.

D McArdle disease

McArdle's disease leads to muscle cramps, weakness and fatigue, which can limit physical activity. It is due to myophosphorylase deficiency.

53398 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % в 10 20 30 40 50 60 80 Q. Answered Flagged Q1 Q2 Q3 Q4

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A 55-year-old taxi driver is reviewed in the Respiratory Clinic complaining of excessive daytime sleepiness and snoring at night. His Epworth Sleepiness Scale score is 18. His blood pressure is 155/92 mmHg and his heart rate is 74 bpm and regular. His body mass index is 36 kg/m².

Which of the following findings would be most expected on lung function testing?

Your answer was incorrect

Α	Decreased forced expirator	v volume in one second

- B Decreased forced vital capacity
- C Decreased forced expiratory volume in one second and decreased forced vital capacity
- D Decreased residual volume
- E Normal lung function

Explanation

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Normal lung function

This patient has severe sleep apnoea, with an Epworth Sleepiness Scale score of 18 (scores of 16–24 rated as severe). Studies showed that around two-thirds of patients with obstructive sleep apnoea have normal lung function, and worsening obstruction is negatively correlated with apnoeic episodes. In this case, the patient must be advised to avoid driving and should be referred for continuous positive airway pressure. He should also receive intervention for weight loss.

A Decreased forced expiratory volume in one second

Significant reduction in forced expiratory volume in one second (FEV1) is not normally seen in patients with obstructive sleep apnoea. Very low levels of FEV1 actually appear to be negatively associated with apnoeic episodes.

B Decreased forced vital capacity

Significant loss of forced vital capacity is not normally a feature of obstructive sleep apnoea. Obesity may result in a restrictive pattern of lung function in only a small percentage of patients.

C Decreased forced expiratory volume in one second and decreased forced vital capacity

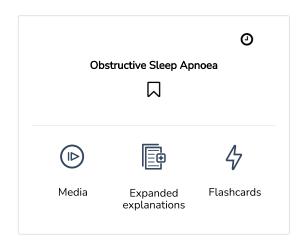
A restrictive lung function pattern is not normally seen in patients with obstructive sleep apnoea. Around 65% of patients have normal values, and only around 12% have a restrictive pattern on lung function testing.

D Decreased residual volume

Mean residual volume is actually slightly increased in patients with obstructive sleep apnoea. One case series suggested a mean of around 116% of predicted.

53422 Rate this question: **Next Question Previous Question** Tag Question **End Review** Feedback Difficulty: Average Peer Responses % в Ó 10 20 30 40 Q. Answered Flagged Q1 Q2 Q3 Q4

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A General Practitioner wants to refer a patient who is complaining of diplopia. They suspect a lateral rectus palsy.

Which of the following is the function of the lateral rectus muscle?

А	Abduction
В	Adduction
С	Depression
D	Elevation
E	Incyclotorsion

Your answer was incorrect

Explanation

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A Abduction

The lateral rectus muscle is responsible for abduction of the eye and it is supplied by the abducens nerve. It is the most common eye muscle palsy in adults, with microvascular disease and trauma both being frequent causes. It can also be a presenting feature in patients with raised intracranial pressure and those with neurosarcoidosis.

B Adduction

The medial rectus muscle is responsible for adduction of the eye. It is supplied by the inferior branch of the oculomotor nerve.

C Depression

The inferior rectus muscle is responsible for depression of the eye. It is supplied by the inferior branch of the oculomotor nerve.

D Elevation

The superior rectus muscle is responsible for elevation of the eye. It is supplied by the superior branch of the oculomotor nerve.

E Incyclotorsion

Q6

The superior oblique muscle is responsible for incyclotorsion. It is supplied by the trochlear nerve.

53334 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % в D 10 Ó 20 50 60 70 80 90 30 Flagged Q. Answered Q1 Q2 Q3 Q4 Q5

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A 29-year-old woman who received a renal transplant six weeks earlier presents to the Renal Clinic for review. She has been feeling unwell, with a dull ache over the affected kidney, as well as decreased urine output. Her creatinine level has doubled.

Which of the following is the most likely mechanism of rejection over this timescale?

` /				
Your	answer	was i	ncorre	ct

Α	Complement activation

- B Cytomegalovirus infection
- C Donor dendritic cells acting as antigen-presenting cells
- D Preformed antibodies to the donor kidney
- E Reperfusion injury to the transplanted kidney

Explanation

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Donor dendritic cells acting as antigen-presenting cells

Acute cellular rejection is triggered when lymphocytes that have been activated against donor antigens are present. They are primarily activated in the lymphoid tissues of the recipient. Donor dendritic cells, which are also known as passenger leukocytes, enter the recipient's circulation and function as antigen-presenting cells, migrating to lymphoid tissues. Low levels of antibodies may also be responsible for acute rejection, because at a low level, they avoid triggering the complement system and precipitating hyperacute rejection.

A Complement activation

Complement activation is the usual mechanism for hyperacute rejection, which occurs where preformed antibodies to the graft bind to an antigen and then activate the complement system.

B Cytomegalovirus infection

Cytomegalovirus (CMV) infection is most often seen within six months of a renal transplant. Where there is an increased risk (eg the donor was CMV-positive), antiviral coverage normally prevents symptomatic infection over the first three months post-surgery.

D Preformed antibodies to the donor kidney

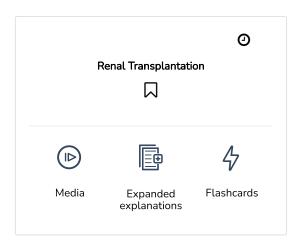
Preformed antibodies to the donor kidney primarily lead to hyperacute rejection because they form antibodyantigen complexes and trigger complement activation.

E Reperfusion injury to the transplanted kidney

Reperfusion injury to the transplanted kidney primarily leads to chronic rejection. A number of other factors can precipitate chronic rejection, including CMV infection, inadequate immunosuppression and a high burden of recipient vascular disease.

53339 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % в 40 Ó 10 20 30 Q. Answered Flagged Q1 Q2 Q3

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An 18-year-old man presents to the Emergency Department with worsening exercise tolerance over the past few months. He is a refugee who has not been able to access healthcare previously. His blood pressure is 125/82 mmHg, his heart rate is 85 bpm and is irregularly irregular. There is a split-second heart sound and a murmur suggestive of tricuspid regurgitation along with cyanosis and peripheral oedema.

Investigations:

Investigation	Result	Normal value
Haemoglobin (Hb)	148 g/l	135–175 g/l
White cell count	7.0×10^{9} /l	$4-11 \times 10^9/l$
Platelets	281 × 10 ⁹ /l	150-400 × 10°/l
Sodium (Na+)	137 mmol/l	135–145 mmol/l
Potassium (K+)	4.9 mmol/l	3.5–5.0 mmol/l
Creatinine	131 µmol/l	50–120 μmol/l

Which of the following is the most likely diagnosis?

Your answer was incorrect

A Atrial septal defect

B Hypoplastic right heart syndrome

C Patent ductus arteriosus

D Primary pulmonary hypertension

E Ventricular septal defect

Explanation



This patient's presentation is consistent with symptoms of an atrial septal defect, with a large shunt leading to hypoxia, pulmonary hypertension and the tricuspid regurgitation noted here. Decreased exercise tolerance is a usual presenting feature, with palpitations consistent with atrial fibrillation. Transoesophageal echocardiography is optimal for imaging any atrial septal defect and assessing applicability for trans-catheter closure of the lesion.

B Hypoplastic right heart syndrome

Hypoplastic right heart syndrome presents in childhood with marked hypoxia. It is associated with the failure of structures on the right-hand side of the heart to develop properly.

C Patent ductus arteriosus

Patent ductus arteriosus is usually an incidental finding in adults, and is associated with a continuous machinery murmur at the upper left sternal edge. It is not associated with the right heart failure and pulmonary hypertension findings seen here.

D Primary pulmonary hypertension

Primary pulmonary hypertension is a rare disease with a prevalence estimated at 15–50 per million. It can present in a similar way to this patient with signs of right heart failure and pulmonary hypertension.

E Ventricular septal defect

A ventricular septal defect is more likely to be associated with a systolic murmur at the left sternal edge, with large defects presenting in childhood with cardiac failure.

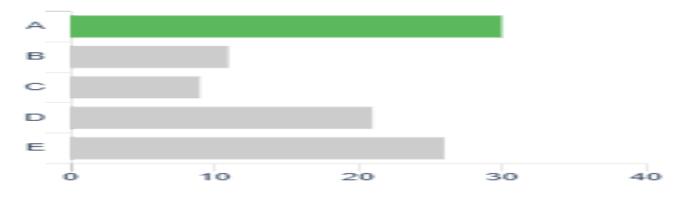
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Atrial Septal Defect	0
Expanded explanations	

A 71-year-old woman presents to the Endocrine Clinic complaining of thirst, polyuria and lethargy over the past three months. She takes ramipril for hypertension but is otherwise well. Her blood pressure is 138/84 mmHg and her heart rate is 74 bpm and regular. Her body mass index is 24 kg/m².

Investigations:

Investigation	Result	Normal value
Haemoglobin	132 g/l	115–155 g/l
White cell count	6.9 × 10 ⁹ /l	$4-11 \times 10^9$ /l
Platelets	197 × 10 ⁹ /l	150-400 × 10 ⁹ /l
Sodium (Na+)	142 mmol/l	135–145 mmol/l
Potassium (K+)	3.9 mmol/l	3.5–5.0 mmol/l
Creatinine	90 μmol/l	50–120 μmol/l
Calcium	2.95 mmol/l	2.1–2.65 mmol/l
Phosphate	0.65 mmol/l	0.8–1.5 mmol/l

Which of the following is the most likely diagnosis?

Your answer was incorrect

A Osteomalacia

B Paget's disease

C Primary hyperparathyroidism

D Secondary hyperparathyroidism

E Tertiary hyperparathyroidism

Primary hyperparathyroidism

Primary hyperparathyroidism occurs due to a single-gland parathyroid adenoma in 85% of cases and leads to elevated serum calcium levels, increased urinary phosphate excretion and a rise in parathyroid hormone levels. Loss of bone mineral density and pathological fractures, as well as renal stones, may be seen in advanced primary hyperparathyroidism. Mild asymptomatic cases of hyperparathyroidism can be managed without surgery. Where there are symptoms or patients present at a young age (below 50 years), parathyroidectomy is advised.

A Osteomalacia

C

Osteomalacia, characterised by low levels of vitamin D, presents with a borderline low level of calcium and elevated alkaline phosphatase level. It does not fit with the clinical picture seen here.

B Paget's disease

Paget's disease usually presents with pain and bony deformity affecting a single joint. Calcium level is normal and there is a marked rise in alkaline phosphatase level.

D Secondary hyperparathyroidism

Secondary hyperparathyroidism occurs in patients with chronic renal impairment where levels of parathyroid hormone rise in response to chronic hypocalcaemia and low levels of hydroxylated vitamin D.

E Tertiary hyperparathyroidism

Tertiary hyperparathyroidism occurs in patients with chronic renal impairment where the production of parathyroid hormone is elevated, even in the presence of elevated calcium level.

Feedback

Difficulty: Average

Peer Responses %



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Media	Expanded explanations	Flashcards

A 28-year-old woman comes to the Gastroenterology Clinic for review. She is concerned as two of her first-degree relatives have died of colon cancer.

Which of the following screening test has the best sensitivity for the detection of colonic polyps?

Υ	Our.	answ	or 1	M/2C	Inco	rract
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A Alpha fetoprotein

B CA19-9

C Colonoscopy

D Computed tomography colonography

E Faecal occult blood test

Explanation

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C Colonoscopy

Colonoscopy has the greatest sensitivity of around 93% for detection of colonic polyps. This is, of course, dependent upon adequate bowel preparation and the colonoscopy practitioner's skill. The high sensitivity of colonoscopy is the reason that a positive faecal occult blood test is usually followed by a colonoscopy appointment.

A Alpha fetoprotein

Alpha fetoprotein levels are raised in patients with liver cancer, as well as in those with viral hepatitis and advanced hepatic cirrhosis. They are not elevated in patients with colon cancer.

B CA19-9

Elevated CA19-9 is most likely to be associated with pancreatic carcinoma. It is less likely to be seen in patients with colon cancer.

Computed tomography colonography

Computed tomography colonography has a similar sensitivity of around 67% for colonic polyps to faecal occult blood testing.

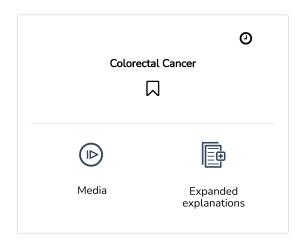
E Faecal occult blood test

D

Although faecal occult blood testing is easy to deploy as a mass screening test, it has a sensitivity of around 67% for colonic polyps, which is less than that for colonoscopy.



Q.	Answered	Flagged
Q6		
Q7		_ O ,



A 23-year-old woman who works in a dogs' home presents to the Emergency Department two days after sustaining a dog bite to her right hand. She cleaned the wound well at the time but is concerned as it has become erythematous. Examination reveals three puncture wounds surrounded by erythema and some adherent pus.

Which of the following is the most appropriate antibiotic intervention?

Your a	answer was incorrect	
А	Ciprofloxacin	
В	Co-amoxiclav	
С	Flucloxacillin	
D	Fucidin ointment	
Е	Mupirocin ointment	
Explai	nation	4
В	Co-amoxiclav	

Dog bites lead to contamination with *Pasteurella* species (both *P. multocida* and *P. canis*), *staphylococci* and *streptococci*, as well as *Capnocytophaga canimorsus*. The best intervention to cover this range of pathogens is co-amoxiclav, which covers *staphylococci*, *streptococci* and Gram-negatives. Co-amoxiclav 625 mg three times daily is an appropriate dose.

A Ciprofloxacin

Quinolones are not recommended for routine use where alternatives are available because of neurological and musculoskeletal adverse effects of therapy. Co-amoxiclav is a better alternative.

C Flucloxacillin

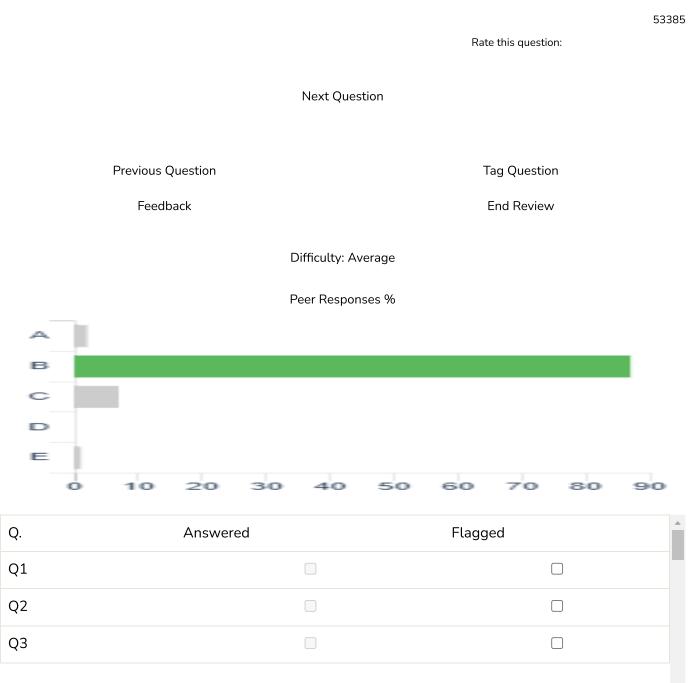
Flucloxacillin targets staphylococcal skin infections. Dog bites always contain mixed pathogens, for which flucloxacillin provides inadequate coverage.

D Fucidin ointment

Fucidin is used to treat topical skin infections caused by *staphylococci*, *streptococci* and *Corynebacterium*. It does not provide coverage for mixed infections caused by dog bites.

E Mupirocin ointment

Mupirocin ointment provides inadequate coverage for dog bite pathogens. It is mainly used as a long-term intervention for the eradication of methicillin-resistant *Staphylococcus aureus* in healthcare workers who carry it.



Q.	Answered	Flagged
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A 19-year-old man presents to the Emergency Department with a severe headache and palpitations. He has had increasing episodes of severe headaches over the past three months. His sister has been diagnosed with renal cell carcinoma. His father had a retinal haemangioblastoma and later died of a stroke.

What is the most likely cause of these patients' presentation?

Your answer was incorrect

Α	von Hippel–Lindau disease type 1A
, ,	voir impose Emiliana anocaco cypo Ext

- B von Hippel–Lindau disease type 2A
- C von Hippel-Lindau disease type 2B
- D von Hippel–Lindau disease type 2C
- E von Hippel–Lindau disease type 1B

Explanation

C

❖

von Hippel–Lindau disease type 2B

The presentation with a possible phaeochromocytoma against a background of likely phaeochromocytoma, retinal haemangioblastoma and renal carcinoma is highly suggestive of von Hippel–Lindau (VHL) disease type 2B, which is associated with all the features of the disease and a high risk of phaeochromocytoma. Patients with the disorder require lifelong and regular surveillance for the development of further tumours because the VHL mutation causes a tumour suppressor gene to malfunction.

A von Hippel–Lindau disease type 1A

von Hippel–Lindau disease type 1A is associated with a low risk of phaeochromocytoma. However, patients develop all other tumour types linked to the disease.

B von Hippel–Lindau disease type 2A

von Hippel–Lindau disease type 2A is associated with an increased risk of phaeochromocytoma, but with a low risk of developing renal cell carcinoma.

von Hippel–Lindau disease type 2C

D

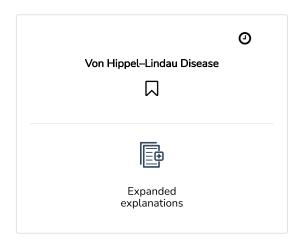
von Hippel–Lindau disease type 2C is associated with phaeochromocytoma, but not with the other features of the disorder.

E von Hippel–Lindau disease type 1B

von Hippel–Lindau disease type 1B is associated with a low risk of phaeochromocytoma and renal cell carcinoma. However, patients develop all other tumour types linked to the disease.

53336 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % В 40 10 20 30 Ó Q. Answered Flagged Q1 Q2 Q3 Q4 Q5

Q.	Answered	Flagged
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A new agent is thought to be anti-inflammatory by interfering with antigen-presenting cell function. Which of the following is a specialised antigen-presenting cell?

Your answer was incorrect

Α	Cytotoxic T-cell

B Erythrocyte

C Macrophage

D Platelet

E T-helper cell

Explanation

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C Macrophage

A number of white cells function as 'professional' antigen-presenting cells. These include macrophages, B-cells and dendritic cells. Other specialised white blood cells such as basophils and eosinophils can also take on an antigen-presenting role. These cells present their antigen to T-helper cells, whereas virally infected cells present their antigen to cytotoxic T-cells.

A Cytotoxic T-cell

Cytotoxic T-cells recognise antigen which is expressed by virally infected cells. They do not function as antigen-presenting cells themselves.

B Erythrocyte

Like platelets, erythrocytes express antigens, rather than function as antigen-presenting cells. These antigens are screened for as part of the blood transfusion matching process.

D Platelet

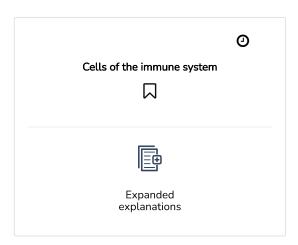
Platelets express antigens which can stimulate autoimmune reactions against platelets, including in some patients who are transfused. However, they do not function as antigen-presenting cells.

E T-helper cell

T-helper cells are not antigen-presenting cells; specialised antigen-presenting cells present antigens to T-helper cells.

53330 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % В C D 60 Ó 10 30 40 50 20 Flagged Q. Answered Q1 Q2 Q3 Q4 Q5 Q6 Q7





An 18-year-old man is referred to the Renal Clinic with facial oedema and proteinuria. He has had two other episodes like this over the past five years and each time he was given a course of corticosteroid tablets. His blood pressure is 122/82 mmHg and his heart rate is 78 bpm and regular.

Investigations:

Investigation	Result	Normal value
Haemoglobin	142 g/l	135–175 g/l
White cell count	8.1 × 10°/l	4-11 × 10°/l
Platelets	293 × 10 ⁹ /l	150-400 × 10°/l
Sodium (Na+)	142 mmol/l	135–145 mmol/l
Potassium (K+)	4.2 mmol/l	3.5–5.0 mmol/l
Creatinine	102 μmol/l	50–120 μmol/l
Urinalysis	Protein 3+, blood negative	

Which of the following is the most likely cause of this patient's symptoms?

Your answer was incorrect

A Alport syndrome

B Immunoglobulin A nephropathy

C Membranous glomerulonephritis

D Minimal change disease

E Post-streptococcal glomerulonephritis

Explanation



Minimal change disease is characterised by marked proteinuria with facial oedema, often the initial presenting symptom. The first presentation usually occurs in childhood and there may be recurrent episodes, including into adulthood. Response rates to prednisolone in young adults is up to 80% over a course of six weeks. Angiotensin-converting enzyme inhibitors can be considered to control proteinuria and blood pressure, particularly if there is no initial positive response to prednisolone.

A Alport syndrome

Alport syndrome is an inherited condition that is associated with microscopic haematuria, progressive renal impairment, and sensorineural deafness. It is more common in men than women. One of the early signs of Alport Syndrome is having blood in the urine. Management is with angiotensin-converting enzyme inhibitors.

B Immunoglobulin A nephropathy

Immunoglobulin A nephropathy presents with haematuria around 48 hours after an upper respiratory tract infection. It does not fit with the marked proteinuria as the major symptom here.

C Membranous glomerulonephritis

Membranous glomerulonephritis is more common in an older age group versus this patient. It is also poorly responsive to steroids as monotherapy.

E Post-streptococcal glomerulonephritis

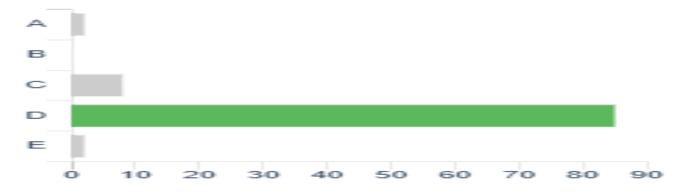
Post-streptococcal glomerulonephritis is associated with haematuria, occurring some 1–2 weeks after a streptococcal throat infection.

Previous Question

Feedback

Difficulty: Average

Peer Responses %



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A 19-year-old woman is referred to the Neurology Clinic with recurrent dull, throbbing headaches which are worse in the morning and last thing at night, and are aggravated by straining on the toilet. She says she also gets greying out of her vision when she bends forward to pick things up off the floor. Symptoms have worsened gradually over four months. There is bilateral papilloedema. Her body mass index is 36 kg/m². Which of the following is the most likely diagnosis?

Your answer was incorrect

- A Cerebral venous thrombosis
- B Migraine
- C Normal pressure hydrocephalus
- D Idiopathic intracranial hypertension
- E Tension headaches

Explanation

Α

D Idiopathic intracranial hypertension

This patient is an obese young woman with papilloedema and transient visual disturbance, which fits with a diagnosis of idiopathic intracranial hypertension. A lumbar puncture usually reveals an opening pressure > 25 cmH $_2$ O. Weight reduction is the most important long-term intervention, while acetazolamide in the short term is effective in lowering intracranial pressure. Topiramate is also used because it suppresses appetite and also acts as a carbonic anhydrase inhibitor. In cases of fulminant idiopathic intracranial hypertension, where vision is threatened, urgent venous shunting or optic fenestration is indicated.

✡

Cerebral venous thrombosis

Cerebral venous thrombosis is seen in association with primary intracranial hypertension. However, a much more rapid deterioration in symptoms, with marked worsening in the severity of the headache, would be expected. All patients suspected of idiopathic intracranial hypertension should have venous imaging to rule out the possibility of venous obstruction.

Migraine

В

Migraine most often manifests with a disabling unilateral throbbing headache associated with nausea. There is also usually an aura characterised by visual disturbance. The papilloedema is unexplained by migraine.

C Normal pressure hydrocephalus

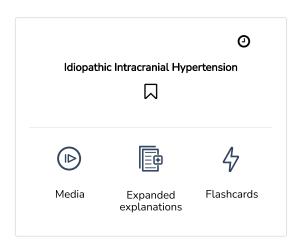
Normal pressure hydrocephalus is associated with short-term memory loss, gait disturbance and urinary incontinence. It is seen most commonly in the elderly. The papilloedema is unexplained by normal pressure hydrocephalus.

E Tension headaches

Tension headaches feel like a band around the head and are usually mild to moderate in severity. They are not associated with papilloedema.

53393 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % 80 Q. **Answered** Flagged Q1 Q2

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A 78-year-old man is recovering in the Orthopaedic Rehabilitation Ward after a left hemiarthroplasty. He is suffering from repeated episodes of faecal incontinence with watery brown diarrhoea. Routine bloods are normal. An abdominal X-ray shows left-sided faecal loading.

Which of the following is the most appropriate initial intervention?

Your answer was incorrect

A Codeine phosphate

B Glycerine suppository

C Loperamide

D Phosphate enema

E Senna

Explanation

*

B Glycerine suppository

This patient has constipation with left-sided faecal loading and overflow diarrhoea. It may have occurred due to inactivity after hip surgery and as a result of using opiate analgesia. Interventions to treat the distal colon and rectum first are usually deployed, with glycerine suppositories an initial option. In the event these are unsuccessful, a phosphate enema can be considered. Once left-sided faecal loading is relieved, an oral agent is usually considered such as sodium docusate. Her analgesia should also be reviewed to reduce the use of opiates if possible.

A Codeine phosphate

This patient has overflow diarrhoea with left-sided faecal loading. Where codeine phosphate is used to treat acute diarrhoea, it is not an appropriate initial treatment for overflow diarrhoea as this patient's symptoms are as a result of their hip surgery. In this case, it is important to treat the distal colon and rectum first. Rectal treatment with a glycerine suppository is, therefore, the most appropriate initial intervention.

C Loperamide

Loperamide is a mu opioid agonist which is used to treat diarrhoea. In this case, however, it will further slow gastrointestinal transit time, leading to worse symptoms for the patient.

D Phosphate enema

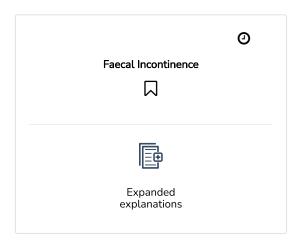
Phosphate enema is usually a second-line option in the event a good result is not obtained from a glycerine suppository. So where this is a good management option, it would not be the initial intervention.

E Senna

A stimulant laxative such as Senna may be useful as a longer-term treatment for constipation. Initially, however, rectal therapy is required to relieve distal faecal impaction for this patient.



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A 19-year-old man presents to the Emergency Department with nausea, vomiting and has developed jaundice. He is tender in the right upper quadrant. He has previously been prescribed sodium valproate for idiopathic generalised epilepsy by his General Practitioner.

Investigations:

Investigation	Result	Normal value
Alanine transaminase	1245 U/l	1–40 U/l
Alkaline phosphatase	392 U/l	30–120 U/l
Bilirubin	45 µmol/l	5–17 μmol/l

Which of the following is the most likely cause of the patient's liver dysfunction?

Your answer was incorrect

A Bile acid induced hepatocyte apoptosis

B Cytochrome P450 family 2 subfamily E member 1 (CYP2E1) dependent hepatotoxicity

C Ileal bile acid transporter inhibition

D Mitochondrial dysfunction

E Peroxynitrite toxicity

Explanation

D



Mitochondrial dysfunction

Mitochondrial dysfunction is thought to be a key factor in hepatotoxicity associated with sodium valproate. Valproate is recognised to lower carnitine levels. This may in turn affect mitochondrial function, leading to increased levels of ammonia and microvascular steatosis. Liver function should be measured before starting valproate treatment and periodically thereafter during the first six months. Patients with inherited mitochondrial dysfunction syndromes are at increased risk of liver injury and valproate should be avoided in these individuals.

A Bile acid induced hepatocyte apoptosis

This process occurs in liver toxicity where a toxicant induces cholestasis. This is not the case where sodium valproate is concerned, and the liver function tests seen here are more consistent with hepatocellular toxicity.

B Cytochrome P450 family 2 subfamily E member 1 (CYP2E1) dependent hepatotoxicity

A number of liver toxins including alcohol and iron are recognised to induce Cytochrome P450 family 2 subfamily E member 1 and the level of induction is proportionate to hepatocyte toxicity.

C Ileal bile acid transporter inhibition

Ileal bile acid transporter inhibition is a potential drug target for hyperglycaemia, dyslipidaemia and constipation, it does not have a role in valproate toxicity.

E Peroxynitrite toxicity

Peroxynitrite toxicity is thought to play a role in liver dysfunction associated with paracetamol overdose. It does not play a role in sodium valproate toxicity.

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Feedback

Difficulty: Average

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A 23-year-old woman presents to the Renal Clinic with difficult-to-control hypertension, an abnormal creatinine level and dipstick-positive proteinuria. She suffered from frequent urinary tract infections as a child. Her blood pressure is 155/90 mmHg and her heart rate is 72 bpm and regular. Her body mass index is 22 kg/m².

Investigations:

Investigation	Result	Normal value
Haemoglobin	112 g/l	115–155 g/l
White cell count	7.1×10^{9} /l	4–11 × 10 ⁹ /l
Platelets	$310 \times 10^9 / l$	150-400 × 10 ⁹ /l
Sodium (Na+)	142 mmol/l	135–145 mmol/l
Potassium (K+)	3.9 mmol/l	3.5–5.0 mmol/l
Creatinine	129 μmol/l	50–120 μmol/l
Urine dipstick	Blood negative, protein 1+	
Ultrasound renal tract	Parenchymal scarring affecting the left kidney	

Which of the following is the most likely diagnosis?

Your answer was incorrect

A Essential hypertension

B Immunoglobulin A nephropathy

C Liddle syndrome

D Minimal change disease

E Reflux nephropathy

Reflux nephropathy

Ε

The clinical picture here with recurrent urinary tract infections in childhood, and now hypertension and proteinuria, coupled with signs of left renal parenchymal scarring, fits best with a diagnosis of reflux nephropathy. Ideally this should be avoided by investigation and treatment of childhood urinary tract infections, but for some reason, this patient may have avoided appropriate follow-up. Voiding cystourethrography is the investigation of choice to inform a decision as to whether surgical intervention is required. Often reflux resolves as adulthood is reached, although renal scarring has already taken place.

A Essential hypertension

Essential hypertension implies that no underlying cause for hypertension is identified. The ultrasound features and recurrent urinary tract infections are a pointer towards reflux nephropathy.

B Immunoglobulin A nephropathy

Immunoglobin nephropathy is associated with haematuria occurring within 48 hours of a respiratory tract infection. It does not fit with the medical history or ultrasound features seen here.

C Liddle syndrome

Liddle syndrome presents with marked hypertension and metabolic alkalosis in childhood or teenage years. It is caused by an epithelial sodium channel mutation.

D Minimal change disease

Minimal change disease is associated with marked proteinuria, which usually responds to treatment with corticosteroids. Recurrent episodes may be seen.

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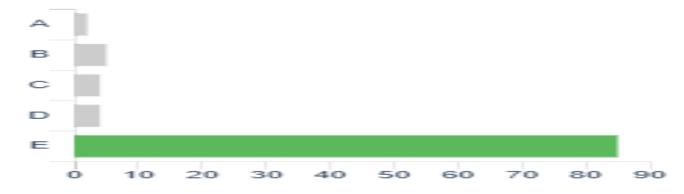
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A 39-year-old woman is referred to the Rheumatology Clinic for investigation of shortness of breath. She has peripheral calcinosis, sclerodactyly, gastro-oesophageal reflux disease and multiple telangiectasiae. There are inspiratory crackles at both lung bases on auscultation, and pulmonary function tests show a restrictive pattern.

Which of the following autoantibodies is most likely to be positive in this case?

Your answer was incorrect

A Anti-centromere

B Anti-smooth muscle

C Anti-topoisomerase 1

D Anti-U1ribonucleoprotein

E Cytoplasmic anti-neutrophil antibodies

Explanation

С

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Anti-topoisomerase 1

This patient's symptoms raise the possibility of interstitial lung disease against a background of systemic sclerosis. Anti-topoisomerase 1 (also known as anti-Scl70) antibodies are strongly associated with interstitial lung disease against a background of systemic sclerosis and therefore, this is the correct answer here. Anti-Th/To, anti-Ro52/TRIM21 and anti-U11/U12 antibodies are all also associated with an increased risk of interstitial lung disease in systemic sclerosis.

A Anti-centromere

Anti-centromere antibodies are associated with limited systemic sclerosis and relative protection from lung and kidney involvement. Anti-RNA polymerase III antibodies are also associated with low rates of systemic sclerosis-associated lung disease.

B Anti-smooth muscle

Anti-smooth muscle antibodies are strongly associated with the development of autoimmune hepatitis.

D Anti-U1ribonucleoprotein

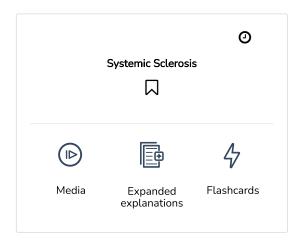
Anti-U1ribonucleoprotein antibodies are predominantly associated with joint involvement in systemic sclerosis and are not strongly associated with the development of interstitial lung disease.

E Cytoplasmic anti-neutrophil antibodies

Cytoplasmic anti-neutrophil antibodies is strongly associated with granulomatosis with polyangiitis, and not with systemic sclerosis, the likely diagnosis here.

53327 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % в 10 20 50 Q. Answered Flagged Q1 Q2 Q3 Q4

Q.	Answered	Flagged
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A 73-year-old man who has heart failure and stage 3b chronic kidney disease is admitted to the Emergency Department with nausea and vomiting which he has had for three days.

Investigations:

Investigation	Result	Normal value
Haemoglobin	108 g/l	135–175 g/l
White cell count	9.1 × 10 ⁹ /l	$4-11 \times 10^9$ /l
Platelets	190 × 10 ⁹ /l	150-400 × 10 ⁹ /l
Sodium (Na+)	132 mmol/l	135–145 mmol/l
Potassium (K+)	7.5 mmol/l	3.5–5.0 mmol/l
Bicarbonate	15 mmol/l	23–29 mmol/l
Creatinine	495 µmol/l	50–120 μmol/l

Which of the following is the most important next step?

Your answer was incorrect

A 30 ml of 10% calcium gluconate intravenously

B 50 ml of 50% dextrose with 10 units of Actrapid® insulin intravenously

C 500 ml of sodium bicarbonate 1.4% intravenously

D Nebulised salbutamol

E Oral calcium resonium

Explanation



30 ml of 10% calcium gluconate intravenously

Calcium gluconate, given as an intravenous bolus injection over 5–10 minutes, reduces the risk of cardiac arrest in hyperkalaemia and is the most important first step in management. Various local hospital guidelines exist, which suggest either giving 10 ml of 10% calcium gluconate initially followed by up to two repeats or giving a single initial bolus of 30 ml. It can then be followed by insulin and dextrose, which help to buy time in reducing the potassium level, while the underlying cause of hyperkalaemia can be investigated and addressed.

B 50 ml of 50% dextrose with 10 units of Actrapid® insulin intravenously

This regimen is used widely in Emergency Departments and is effective in acutely bringing down the serum potassium level. It, however, should not delay the use of calcium gluconate for cardioprotection.

C 500 ml of sodium bicarbonate 1.4% intravenously

Although acidosis is recognised to exacerbate hyperkalaemia, delivering sodium bicarbonate can worsen salt and water retention in this patient with heart failure and chronic kidney disease. Interventions for cardioprotection and to reduce the potassium level acutely are, therefore, preferred.

D Nebulised salbutamol

Nebulised salbutamol is effective in reducing the serum potassium level but is usually only considered when it is difficult to obtain intravenous access to deliver calcium gluconate and insulin and dextrose.

E Oral calcium resonium

Although calcium resonium is an effective potassium binder, it takes some time to impact on serum potassium levels. The patient may have suffered a cardiac arrest before the resonium has a significant clinical effect.

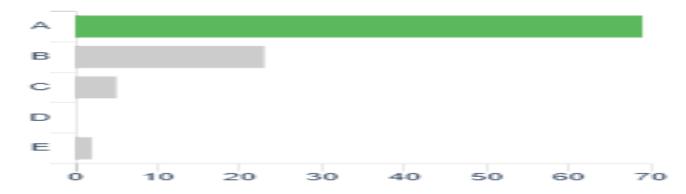
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F	Potassium Imbalan	O
∬ Media	Expanded explanations	4 Flashcards

A 25-year-old man presents to the Emergency Department complaining of sharp retrosternal chest pain which is worse on inspiration and on lying flat. He has recently been suffering from a cold. His blood pressure is 123/82 mmHg and his heart rate is 79 bpm and regular.

Which of the following is the most likely finding on the electrocardiogram?

Your answer was incorrect

Α	Benign early repolarisation
$\overline{}$	being repotansation

B Concave ST elevation

C Convex ST elevation

D Widespread U waves

E Widespread T wave inversion

Explanation

В

Α

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Concave ST elevation

This patient has symptoms consistent with acute pericarditis which can follow a number of viral infections including Coxsackie B and influenza viruses. There is retrosternal chest pain worse on inspiration and on lying flat and relieved by lying forward. The electrocardiogram shows widespread concave or saddle-shaped ST-segment elevation. Non-steroidal anti-inflammatory agents and colchicine are typical first-line interventions.

Benign early repolarisation

Benign early repolarisation leads to mild ST-segment elevation where tall T-waves are seen mainly in the precordial leads. This is a normal variant seen most commonly in young, healthy individuals.

C Convex ST elevation

Convex ST elevation is most strongly associated with acute myocardial infarction. The history and symptoms as described here are more consistent with pericarditis.

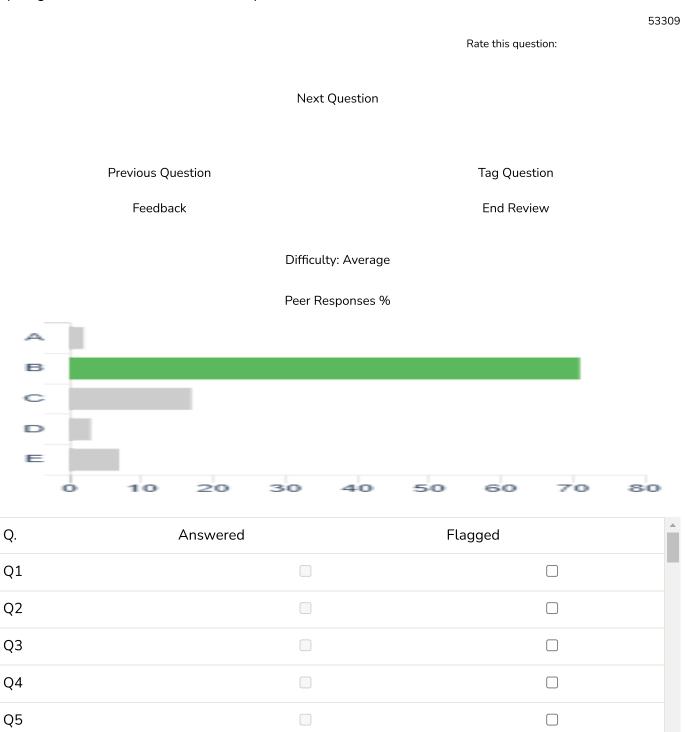
Widespread U waves

D

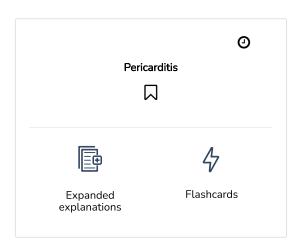
U waves are seen as a small deflection in the same direction of the T wave shortly following it. They are strongly associated with hypokalaemia.

E Widespread T wave inversion

T wave inversion is predominantly seen in the chronic or recovery period of pericarditis, rather than in the early stages of the disease as seen in this patient.



Q.	Answered	Flagged
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A 24-year-old woman is admitted to the Emergency Department having taken a large overdose of lithium tablets. She is unconscious. Her Glasgow coma scale is 8, her blood pressure is 115/70 mmHg and her heart rate is 100 bpm and regular.

Investigations:

Investigation	Result	Normal value
Haemoglobin (Hb)	138 g/l	115–155 g/l
White cell count	7.9×10^{9} /l	$4-11 \times 10^9/l$
Platelets	193 × 10 ⁹ /l	150-400 × 10°/l
Sodium (Na+)	132 mmol/l	135–145 mmol/l
Potassium (K+)	3.6 mmol/l	3.5–5.0 mmol/l
Creatinine	137 µmol/l	50–120 μmol/l
Lithium	5.2 mmol/l	0.4–1.9 mmol/l

Which of the following is the most appropriate intervention for the patient's lithium overdose?

Your answer was incorrect

Α Forced alkaline diuresis

В Haemodialysis

С Intravenous 1.8% saline

D Activated charcoal

Ε Whole bowel irrigation

Explanation



For patients with significant lithium overdose (where the lithium level is above 5 mmol/l), haemodialysis is the only practical option to remove lithium and treat the patient. Lithium is readily dialysable because of its low molecular weight, very low protein binding and small volume of distribution. It should also be considered for patients with lithium overdose who have significant renal impairment, (creatinine above 150 µmol/l). A rebound increase in serum lithium occurs when dialysis stops, so most experts recommend prolonging the dialysis period as much as possible.

A Forced alkaline diuresis

Forced alkaline diuresis eg, infusing sodium bicarbonate alongside 5% dextrose at 1.5 l/hr, was formerly used for the treatment of aspirin overdose. It is, however, now thought to be no more effective than treatment with sodium bicarbonate alone.

C Intravenous 1.8% saline

Fluid replacement with 1.8% saline does play a role in the management of lithium overdose. In this case, with a lithium level above 5 mmol/l and normal blood pressure, haemodialysis is the most appropriate definitive intervention.

D Activated charcoal

Lithium is a charged particle and rapidly absorbed. Activated charcoal has no role in the management of lithium overdose or other substances with polarity eg, alcohols, metals (eg, iron) and electrolytes (eg, sodium, potassium or magnesium).

E Whole bowel irrigation

Whole bowel irrigation is of value in conscious patients. Given this patient has a very high lithium level and a Glasgow coma scale of 8, haemodialysis is the most appropriate intervention. Whole bowel irrigation cannot be used for chronic lithium poisoning.

Feedback

53314

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	Lithium Toxicity	0
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Media	Expanded explanations	Flashcards

A 58-year-old woman with type II diabetes and obesity is started on liraglutide, in addition to her metformin.

Which of the following is the mode of action of liraglutide?

Your answer was incorrect

- A Glucose-dependent insulinotropic polypeptide agonist
- B Glucagon-like peptide 1 agonist
- C Glucagon-like peptide 2 agonist
- D Glucagon agonist
- E Sodium-glucose cotransporter 2 inhibitor

Explanation

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B Glucagon-like peptide 1 agonist

Glucagon-like peptide 1 (GLP1) agonists enhance the incretin effect, whereby insulin is released in response to an oral glucose challenge. They also slow gastric emptying and may have central effects in reducing appetite. Nausea and vomiting are the main adverse effects of high-dose GLP1 therapy. Glucagon-like peptide 1 (GLP1) agonists have a positive effect on cardiovascular outcomes in patients with type II diabetes and can drive significant weight reduction.

A Glucose-dependent insulinotropic polypeptide agonist

Glucose-dependent insulinotropic polypeptide agonism potentially further enhances insulin release and weight loss. A combination of glucagon-like peptide and glucose-dependent insulinotropic polypeptide agonists will soon become available for the treatment of type II diabetes.

C Glucagon-like peptide 2 agonist

Glucagon-like peptide 2 (GLP2) agonists stimulate the growth of small bowel mucosa. One GLP2 agonist is now available for the treatment of short bowel syndrome.

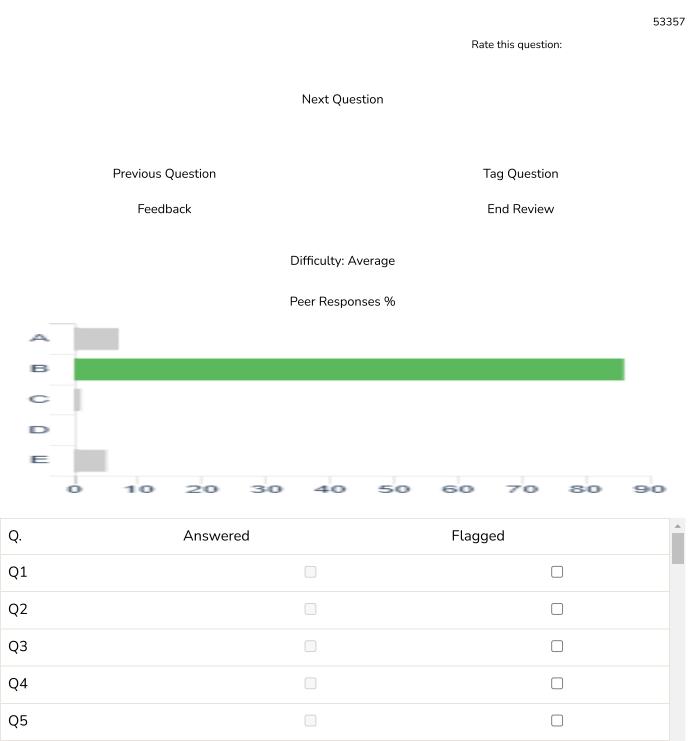
Glucagon agonist

D

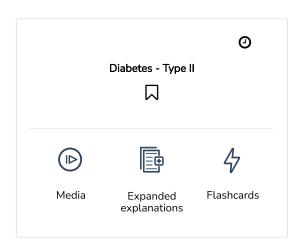
Glucagon agonists target the mobilisation of liver fat. Dual GLP1 and glucagon agonist agents are under development for treatment of non-alcoholic steatohepatitis.

E Sodium-glucose cotransporter 2 inhibitor

Sodium-glucose cotransporter 2 inhibitors include dapagliflozin and empagliflozin. They increase renal excretion of glucose and sodium and are effective in treating type II diabetes, heart failure and chronic kidney disease.



Q.	Answered	Flagged
Q6		
Q7		
08		



A 75-year-old woman presents to the Emergency Department with shortness of breath and right-sided pleuritic chest pain for the past week. She has long-standing chronic obstructive pulmonary disease (COPD), for which she takes triple inhaled therapy. Her blood pressure is 122/82 mmHg and her heart rate is 92 bpm and regular. She has a hyperexpanded chest, with quiet wheeze bilaterally on auscultation.

Investigations:

Investigation	Result	Normal value
Haemoglobin	122 g/l	115–155 g/l
White cell count	9.2 × 10 ⁹ /l	$4.5-11 \times 10^9$ /l
Platelets	189 × 10 ⁹ /l	150–400 × 10 ⁹ /l
Sodium (Na+)	1402 mmol/l	135–145 mmol/l
Potassium (K+)	3.9 mmol/l	3.5–5.0 mmol/l
Creatinine	109 µmol/l	50–120 μmol/l
D-dimer	0.7	< 0.5
C-reactive protein	24 mg/l	< 10 mg/l

Chest X-ray reveals changes consistent with COPD, no focal lesion was identified.

Which of the following is the most appropriate next step?

Your answer was incorrect

А	Antibiotics
В	Colchicine
С	Computed tomography pulmonary angiography
D	Nebuliser and oral corticosteroids
Е	Procalcitonin



This patient has pleuritic chest pain, with a raised D-dimer level and no focal signs of lower respiratory tract infection or a viral exacerbation of chronic obstructive pulmonary disease. Given her likely low level of physical activity, she is at high risk of venous thromboembolism and computed tomography pulmonary angiography is indicated to confirm or refute the diagnosis. She should be given treatment-dose low-molecular-weight heparin, and a direct-acting oral anticoagulant initiated if the diagnosis is confirmed. Treatment for six months is indicated.

A Antibiotics

The C-reactive protein level is only mildly elevated and there is no evidence of focal infection on the chest X-ray to indicate a requirement for antibiotics.

B Colchicine

Colchicine is used in the treatment of chronic pericarditis, which is associated with pleuritic chest pain, but does not fit with the scenario here.

D Nebuliser and oral corticosteroids

Nebulisers and corticosteroids are the intervention for an exacerbation of chronic obstructive pulmonary disease. However, the clinical picture here is more consistent with a pulmonary embolism.

E Procalcitonin

Procalcitonin is an acute phase reactant that is particularly sensitive to bacterial respiratory infections and does not increase with viral infections or other inflammatory conditions. Here, with only a mild increase in C-reactive protein level, a lack of productive sputum and no focal infection visible on the chest X-ray, it is unlikely this patient has a bacterial respiratory infection.

Previous Question

Feedback

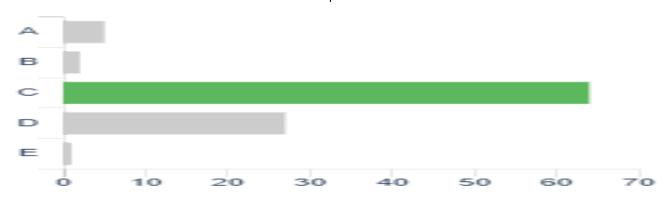
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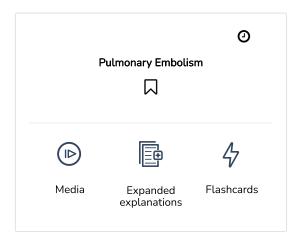
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End Review

Difficulty: Average



Q.	Answered	Flagged
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A 56-year-old man presents to the General Practitioner saying that he had unprotected sex with his partner who is human immunodeficiency virus (HIV)-positive four weeks ago. He requests HIV testing.

Which of the following is the most sensitive HIV screening test?

Your answer was incorrect

Α	CD4-positive T	lymphocyte testing
, ,	OD I POSICIVE I	cymphocy to testing

B HIV-1 ribonucleic acid (RNA) testing

C Immunoglobulin G (IgG) anti-HIV antibodies

D Immunoglobulin M (IgM) anti-HIV antibodies

E P24 antigen testing

Explanation



B HIV-1 ribonucleic acid (RNA) testing

Human immunodeficiency virus (HIV)-1 RNA testing becomes positive as early as 1.5–2 weeks after HIV infection. Out of the options given, it is the earliest to become positive and the most sensitive. Where it is not available, a fourth-generation antigen/antibody test would be the preferred option.

A CD4-positive T lymphocyte testing

The CD4 lymphocyte count falls as a late consequence of HIV infection. It is not of value here in evaluating early HIV infection.

C Immunoglobulin G (IgG) anti-HIV antibodies

Immunoglobulin G (IgG) antibodies become positive after a median of around 33 days, meaning a significant risk of a false negative result if only IgG anti-HIV antibodies are tested for.

D Immunoglobulin M (IgM) anti-HIV antibodies

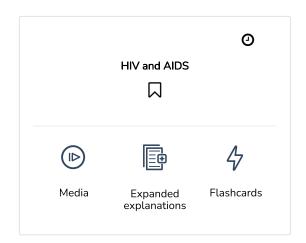
Immunoglobulin (IgM) anti-HIV antibodies become positive after a median of 23 days, with 99% of HIV patients being positive by 49 days. This means a significant number of cases could be missed by IgM testing.

E P24 antigen testing

P24 antigen testing reaches maximum sensitivity at around 3.5 weeks after HIV infection. There is a chance therefore that at four weeks, testing may result in a false negative result, making HIV RNA testing the preferred investigation.

53387 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % в Ó 10 20 30 40 60 Q. Answered Flagged Q1 Q2 Q3 Q4 Q5 Q6

Q.	Answered	Flagged
Q7		
08		



A 54-year-old man, who suffers from alcoholism, presents to the Emergency Department with a major upper gastrointestinal haemorrhage. He is treated with terlipressin, intravenous fluid and blood products. His blood pressure is 110/72 mmHg and his heart rate is 75 bpm and regular. He has signs of chronic liver disease, including jaundice and slight ascites. He has grade 2 hepatic encephalopathy.

Investigations:

Investigation	Result	Normal value
Haemoglobin	92 g/l	135–175 g/l
White cell count	7.1 × 10°/l	$4-11 \times 10^9$ /l
Platelets	55 × 10 ⁹ /l	150–400 × 10 ⁹ /l
Sodium (Na+)	134 mmol/l	135–145 mmol/l
Potassium (K+)	3.9 mmol/l	3.5–5.0 mmol/l
Creatinine	112 μmol/l	50–120 μmol/l
Albumin	32 g/l	35–45 g/l
Bilirubin	58 µmol/l	2–21 μmol/l

Which of the following features is most associated with a poor prognosis according to the Child-Pugh score?

Your answer was incorrect

A Albumin 32 g/l

B Bilirubin 58 µmol/l

C Grade 2 hepatic encephalopathy

D Platelets 55×10^9 /l

E Slight ascites

Bilirubin 58 µmol/l

В

Parameter	Points assigned		
	1	2	3
Ascites	Absent	Slight	Moderate
Bilirubin	< 34.2 mmol/l	34.2–51.3 mmol/l	> 51.3 mmol/l
Albumin	> 35 g/l	28–35 g/l	< 28 g/l
Prothrombin time (seconds over control)	< 4	4–6	> 6
International normalised ratio (INR)	< 1.7	1.7–2.3	> 2.3
Encephalopathy	None	Grade 1–2	Grade 3–4

All the features listed, apart from PLT count, are constituents of the Child–Pugh score and a bilirubin level of 58 mmol/l falls into the most severe category (> 51.3), scoring 3 points. A score of 10–15 is consistent with class C, which has a 2-year patient survival of 35%.

A Albumin 32 g/l

An albumin level of 32 g/l falls into the middle prognosis category, scoring 2 points. Levels < 28 g/l fall into the worst prognosis category, contributing 3 points.

C Grade 2 hepatic encephalopathy

Grades 3 and 4 hepatic encephalopathy are associated with the worst prognostic outcome in liver failure. Grade 3 is classified as stupor, but responsive to verbal stimuli, confusion and disorientation. Grade 4 is classified as coma (unresponsive to verbal or noxious stimuli). Grade 2 encephalopathy presents with milder features than grade 3, with sleepiness, disorientation and inappropriate behaviour.

D Platelets
$$55 \times 10^9$$
/l

Platelets are associated with portal hypertension, but they are not a constituent of the Child–Pugh score. A platelet count < 20 is associated with a significant risk of haemorrhage.

E Slight ascites

Slight ascites contributes 2 points to the score, in contrast to the bilirubin level here which contributes 3 points.

Rate this question:

Next Question

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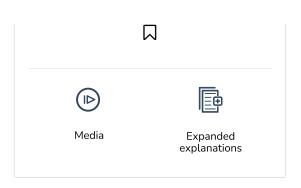
②

Cirrhosis and liver failure

Q7

Q8

Q9



A 19-year-old man is referred to the Rheumatology Clinic with lower back and buttock pain. His General Practitioner prescribed naproxen three months ago, but this has not helped his pain which often wakes him up and persists for 2–3 hours each morning. Past medical history of note includes an episode of uveitis nine months ago. Back examination reveals a limitation of forward and lateral flexion of the lumbar spine.

C-reactive protein is 57 mg/l (normal value < 10 mg/l).

Which of the following is the most sensitive investigation to diagnose the patient's underlying condition?

Your answer was incorrect

A Autoimmune profile

B Computed tomography spine and sacroiliac joints

C Dual-energy X-ray absorptiometry scan

D Magnetic resonance imaging spine and sacroiliac joints

E Ultrasound lumbar spine

Explanation

D

❖

Magnetic resonance imaging spine and sacroiliac joints

This patient's symptoms with inflammatory back pain not relieved by a non-steroidal anti-inflammatory agent, an episode of uveitis and a moderate rise in C-reactive protein level are suggestive of ankylosing spondylitis. Out of the investigations given, it is magnetic resonance imaging that is optimal for detecting early sacroiliitis and it is, therefore, the most useful next step in confirming the diagnosis. In ankylosing spondylitis, physiotherapy is key to preventing permanent stiffness and back pain. There is also a move to early treatment with anti-tumour necrosis factor biologicals in the event that two or more non-steroidal anti-inflammatory drugs are ineffective in controlling symptoms.

A Autoimmune profile

Guidelines suggest that only inflammatory markers (eg C-reactive protein) are useful in diagnosing ankylosing spondylitis, the most likely diagnosis here.

Computed tomography spine and sacroiliac joints

Computed tomography spine is less sensitive than magnetic resonance imaging in diagnosing ankylosing spondylitis and, therefore, is not a recommended investigation for this patient.

C Dual-energy X-ray absorptiometry scan

Dual-energy X-ray absorptiometry scanning may be important as part of the workup to assess osteoporosis risk. It may, however, underestimate the risk because of new bone formation in the spine.

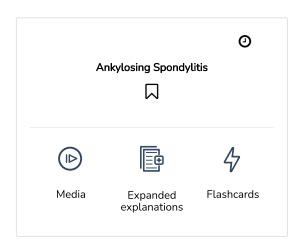
E Ultrasound lumbar spine

В

Ultrasound is most useful in diagnosing enthesitis, eg Achilles tendonitis or plantar fasciitis. It is not the most sensitive investigation to diagnose this patient's ankylosing spondylitis.

53326 Rate this question: **Next Question** Previous Question Tag Question Feedback **End Review** Difficulty: Average Peer Responses % Q. Answered Flagged Q1 Q2

Q.	Answered	Flagged
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A 62-year-old man who has type II diabetes and hypertension presents to the Emergency Department with central crushing chest pain. He has ST-segment elevation affecting leads II, III and aVF.

Which artery is most likely to have been occluded?

Your answer was incorrect

Α	Left anterior descending artery

- B Left circumflex artery
- C Left diagonal arteries
- D Left marginal artery
- E Right coronary artery

Explanation

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E Right coronary artery

This patient has presented with an electrocardiogram (ECG) suggesting an inferior myocardial infarction. In 80% of cases, this develops as a result of occlusion of a dominant right coronary artery. A dominant left circumflex artery is seen in 18% of cases. In cases where patients suffer a very large infarction, a so-called wrap-around infarction involving the left anterior descending artery, this may lead to ECG changes affecting both the anterior and inferior territories.

A Left anterior descending artery

The left anterior descending artery supplies blood to the anterior territory, as shown on the electrocardiogram. Only in very large infarcts can a left anterior descending artery occlusion result in inferior ST-segment elevation, a so-called 'wrap-around' infarction.

B Left circumflex artery

The left circumflex artery only supplies blood to the inferior territory in 18% of cases. Most patients have a right dominant coronary circulation.

Left diagonal arteries

C

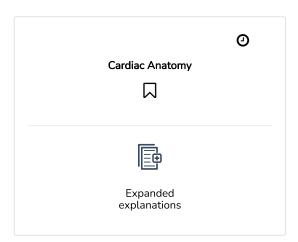
Diagonal branches of the left anterior descending artery supply blood to the anterior and anterolateral walls of the left ventricle.

D Left marginal artery

Occlusion of the left marginal artery usually leads to lateral changes on the electrocardiogram, rather than the inferior changes seen here.

53331 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % Ó 10 20 50 60 80 30 40 90 Q. Answered Flagged Q1 Q2 Q3 Q4 Q5

Q.	Answered	Flagged
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A 35-year-old man is reviewed on the Acute Medicine Ward 36 hours after admission with an overdose of codeine phosphate tablets. He required multiple naloxone during the first 12 hours of his hospital stay. He works as a pharmacist and has recently split from his wife of 12 years. He has two children and sings in the local church choir.

Which of the following is this patient's biggest risk factor for completed suicide?

Α	Age of 35 years	

Your answer was incorrect

B Connection to the church

C Having two children

D Recent divorce

E Work as a pharmacist

Explanation

❖

D Recent divorce

A divorce is recognised as a strong risk factor for successful suicide because it results in living alone. Other risk factors include unemployment, chronic debilitating physical health problems, alcohol and drug dependence and active mental illness. Protective factors include responsibility for others (such as working as a pharmacist), a strong religious faith, the presence of children and family support to find solutions for underlying problems.

A Age of 35 years

Age is not a strong risk factor for completed suicide, compared to other aspects of this patient's social history such as the recent divorce. Male sex is associated with an increased risk of completed suicide.

B Connection to the church

Religious faith is thought to be protective against successful suicide, although there is limited evidence.

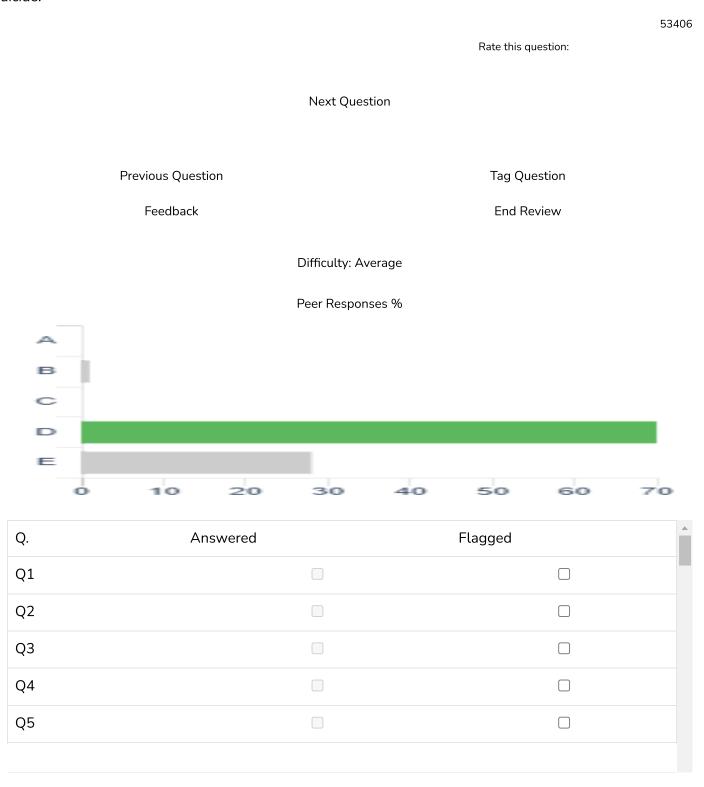
Having two children

C

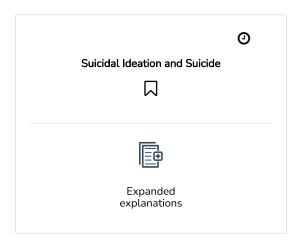
Having dependants (children) reduces the odds of a successful suicide. Accepting family support is also protective.

E Work as a pharmacist

Working as a pharmacist is a job that carries responsibility for others. This is protective against successful suicide.



Q.	Answered	Flagged	
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Q7			D ,



A 72-year-old woman presents to the Dermatology Clinic because of a change in the appearance of a brown patch of skin on her left cheek. She says that over the last six months, it has increased in size and developed an irregular border and areas of dark pigmentation within it.

Which of the following is the most likely diagnosis?

Your answer was incorrect

Α	Actinic	keratosis
$\overline{}$	Acuille	Keratosis

- B Basal cell carcinoma
- C Lentigo maligna melanoma
- D Keratoacanthoma
- E Squamous cell carcinoma

Explanation

₽

C Lentigo maligna melanoma

This patient's presentation with a rapidly changing pigmented lesion on the cheek is consistent with a diagnosis of lentigo maligna melanoma where melanocytes within the lesion have become atypical and are growing in a disordered way, leading to the irregular edge and pigmentation. Surgical excision is the intervention of choice, although where it is impossible because of the size or position of the lesion, cryotherapy and topical therapy with imiquimod are possible alternatives.

A Actinic keratosis

Actinic keratoses present as small, irregular erythematous scaling plaques on sun-exposed areas. They are at risk of progression to squamous cell carcinomas.

B Basal cell carcinoma

Early basal cell carcinomas are pearly papules with telangiectasia. They later develop into ulcerated lesions with a raised edge.

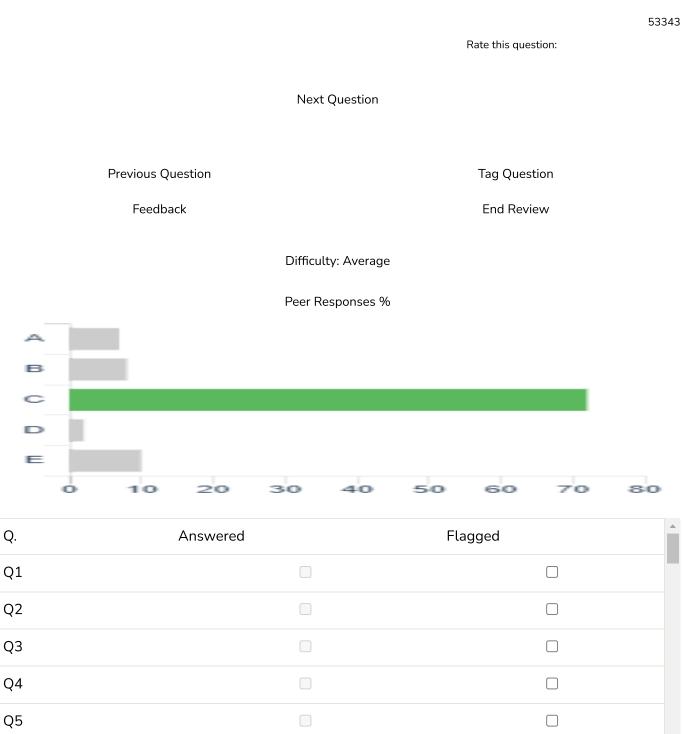
Keratoacanthoma

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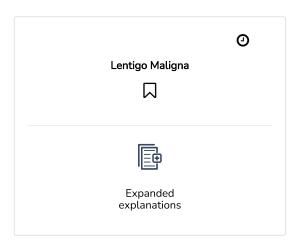
Keratoacanthomas are rapidly growing nodular lesions which resemble a squamous cell carcinoma, but they slowly involute over a 4- to 6-month period.

E Squamous cell carcinoma

Squamous cell carcinoma typically begins as a nodular lesion which grows rapidly to form a non-healing skin ulcer.



Q.	Answered	Flagged
Q6		
Q7		O



A 61-year-old man is reviewed in the Gastrointestinal Clinic following a screening upper gastrointestinal endoscopy after being diagnosed with F4 fibrosis (cirrhosis) due to underlying non-alcoholic steatohepatitis. He is found to have grade 2 oesophageal varices.

Which of the following is the most appropriate prophylaxis against variceal haemorrhage?

Your a	answer was incorrect	
Α	Amlodipine	
В	Carvedilol	
С	Eplerenone	
D	Furosemide	
Е	Terlipressin	
Explar	nation	K
В	Carvedilol	

Beta blockade is the intervention of choice for prophylaxis against variceal bleeds in patients with portal hypertension. A reduction of up to 43% in hepatic venous pressure gradient is seen in patients chronically treated with carvedilol. Cross-comparison vs propranolol suggests that carvedilol is the more effective of the two options. A reduction of > 20% in hepatic venous pressure gradient or to < 12 mmHg is classified as a response to therapy and is associated with a significant reduction in the risk of variceal haemorrhage.

A Amlodipine

Calcium channel blockers, such as amlodipine, are not as effective as prophylaxis against variceal haemorrhage. They may also cause symptoms of postural hypotension in patients with significant liver disease.

C Eplerenone

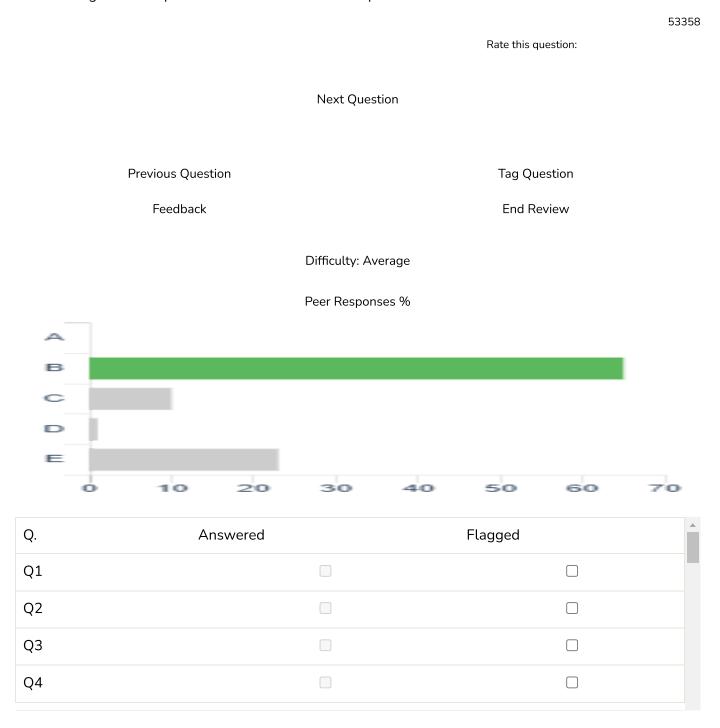
Eplerenone may be used to manage ascites in portal hypertension, especially when patients fail to tolerate spironolactone due to gynaecomastia.

D Furosemide

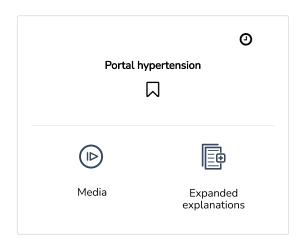
Furosemide may be of value in controlling ascites in people with portal hypertension. Beta blockade is, however, the optimal intervention to reduce the risk of variceal haemorrhage.

E Terlipressin

Terlipressin is used acutely in patients presenting with variceal haemorrhage to reduce the risk of further acute bleeding. It alters splanchnic blood flow to reduce pressure within the varices.



Q.	Answered	Flagged
Q5		
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A 51-year-old man who works as an accountant presents to the Rheumatology Clinic, complaining of painful, swollen fingers for the past three months that make it impossible for him to carry out his job on a computer. He has type II diabetes that is managed with metformin, obesity and hypertension. Examination reveals swollen fingers from the metacarpophalangeal joints distally on three fingers of his right hand and two fingers of his left hand. He has nail pitting.

Which of the following is the most likely cause of this patient's finger arthritis?

Your a	answer was incorrect	
А	Gout	
В	Osteoarthritis	
С	Psoriatic arthritis	
D	Reactive arthritis	
Е	Rheumatoid arthritis	
Explar	nation	ł
С	Psoriatic arthritis	

Clues here towards psoriatic arthritis include nail pitting on examination of the fingers and dactylitis affecting some fingers of each hand, so-called 'sausage fingers'. Other patterns of psoriatic arthritis include symmetrical polyarthritis in a rheumatoid pattern, distal interphalangeal arthritis alone and arthritis mutilans. Around 40% of patients with psoriatic arthritis fulfil the criteria for the metabolic syndrome. Methotrexate is the conventional disease-modifying anti-rheumatic drug of choice in psoriatic arthritis, with anti-tumour necrosis factor biologicals as the next step in patients who do not respond adequately.

A Gout

Gout usually affects a single joint and leads to a presentation with acute monoarthritis, rather than with this patient's symptoms which affect multiple joints and have lasted for a number of months.

3 Osteoarthritis

Osteoarthritis may present with disease affecting the fingers only. However, given this patient has a sedentary job and works as an accountant, it is highly unlikely it would underlie the presentation here. Nail pitting is also a pointer towards psoriatic arthritis.

D Reactive arthritis

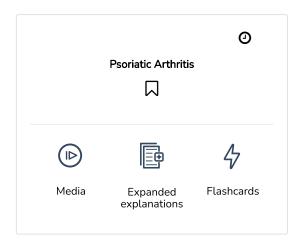
There is no obvious trigger for reactive arthritis here such as gastrointestinal or sexually transmitted infection.

E Rheumatoid arthritis

Rheumatoid arthritis typically affects proximal interphalangeal and metacarpophalangeal joints and the wrists. The dactylitis seen here is more consistent with a diagnosis of psoriatic arthritis.

53328 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % в C Q. Answered Flagged Q1 Q2 Q3

Q.	Answered	Flagged
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A 24-year-old woman who is eight weeks pregnant presents to the Emergency Department after suffering a second generalised tonic-clonic seizure in the last four weeks. She is known to have epilepsy and stopped taking sodium valproate when she was 18 years old. A magnetic resonance imaging brain is reported as normal.

Which of the following is the most appropriate choice of anti-epileptic?

Your a	inswer was incorrect
А	Carbamazepine
В	Gabapentin
С	Lamotrigine
D	Phenytoin
Е	Sodium valproate
Explar	nation **
С	Lamotrigine

Lamotrigine, along with levetiracetam, is among the safest options for use in pregnancy. The rate of occurrence of minor malformations is 2% higher than that in the general pregnant population, although the risk of uncontrolled seizures far outweighs this.

A Carbamazepine

Carbamazepine increases the risk of neural tube defects and is more often used in the treatment of focal onset seizures.

B Gabapentin

Very limited data exists on the use of gabapentin in pregnancy and it is not recommended. In the context of epilepsy, gabapentin is primarily used for the treatment of focal onset seizures.

D Phenytoin

Phenytoin is teratogenic and can lead to the development of fetal hydantoin syndrome in between 5 and 10% of pregnancies. This includes developmental delay, cleft palate, facial abnormalities, cardiac defects, genitourinary and finger and nail abnormalities.

E Sodium valproate

Sodium valproate is associated with the development of fetal valproate syndrome, it is teratogenic with around 14% of babies experiencing a range of different neurodevelopmental abnormalities. While first line in generalised onset seizures in men, valproate should not be used as the first line in women of child bearing potential, unless the patient is refractory to other treatments and there is a pregnancy prevention programme in place.

53311 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % B 10 80 Flagged Q. Answered Q1 Q2 Q3

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A 19-year-old woman is referred to the Dermatology Clinic with diarrhoea and bloating and an intensely itchy vesicular rash affecting the buttocks and the tops of both thighs.

Which of the following is the most likely finding on skin biopsy?

Your answer was incorrect

- A Granular immunoglobulin A deposits in the dermal papillae
- B Granular immunoglobulin E deposits in the dermal papillae
- C Granular immunoglobulin G deposits in the dermal papillae
- D Increased keratinocyte turnover
- E Munro microabscesses

Explanation

Α

❖

Granular immunoglobulin A deposits in the dermal papillae

This patient's symptoms are consistent with dermatitis herpetiformis, with diarrhoea and bloating raising the possibility of coeliac disease. Both conditions occur due to hypersensitivity to gluten, and skin biopsy in dermatitis herpetiformis is characterised by immunoglobulin A deposits within the dermal papillae. Strict avoidance of gluten is the intervention of choice, with dapsone an option in patients with refractory symptoms.

B Granular immunoglobulin E deposits in the dermal papillae

Increased immunoglobulin E deposition within the skin is a feature of atopic dermatitis, it does not fit with dermatitis herpetiformis, the likely diagnosis here.

C Granular immunoglobulin G deposits in the dermal papillae

This patient's presentation is consistent with dermatitis herpetiformis, where immunoglobulin A deposits not immunoglobulin G deposits are seen on skin biopsy.

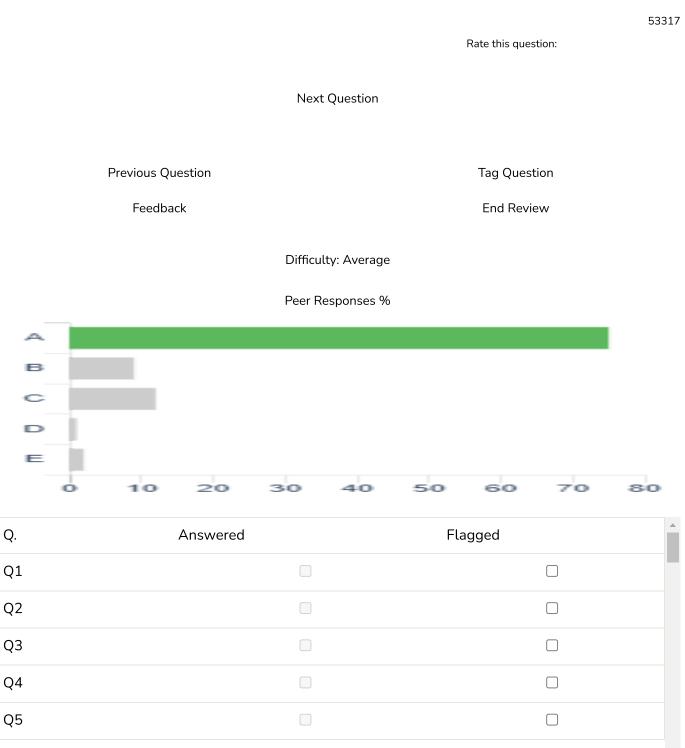
Increased keratinocyte turnover

Increased keratinocyte turnover is seen in patients with psoriasis. Migration from basal to cornified skin layers occurs in only 3-5 days compared to the normal 28-30 days.

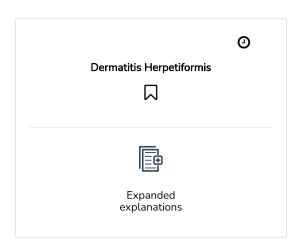
E Munro microabscesses

D

Munro microabscesses are formed by collections of neutrophils and are found on skin biopsy in patients with psoriasis.



Q.	Answered	Flagged	
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Q7			D _



A 60-year-old man presents to the Oncology Clinic with a cystoscopy for haematuria and is found to have transitional cell carcinoma of the bladder. He has just retired from 20 years working in a petroleum products factory. He had a bacille Calmette-Guérin vaccination aged 13 and recurrent urinary tract infections as a young child. Medications include ramipril for the control of hypertension and apixaban because of atrial fibrillation.

Which of the following is this patient's most important risk factor for bladder cancer?

$\nabla \cap$	ır	anc	WAL	was	Inco	rract

Α	Apixabar

- B Bacille Calmette-Guérin vaccination
- C Ramipril
- D Recurrent urinary tract infections
- E Working with petroleum products

Explanation

Ε

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Working with petroleum products

Occupational exposure to aromatic amines, polycyclic aromatic hydrocarbons and chlorinated hydrocarbons accounts for about 10% of all cases of bladder cancer. This occurs in individuals who work with petroleum products and those in the dyes and plastics industry. In current times, health and safety at work practices have eliminated this excess risk.

A Apixaban

Apixaban may unmask haematuria due to bladder cancer. It does not increase the risk of bladder cancer.

B Bacille Calmette-Guérin vaccination

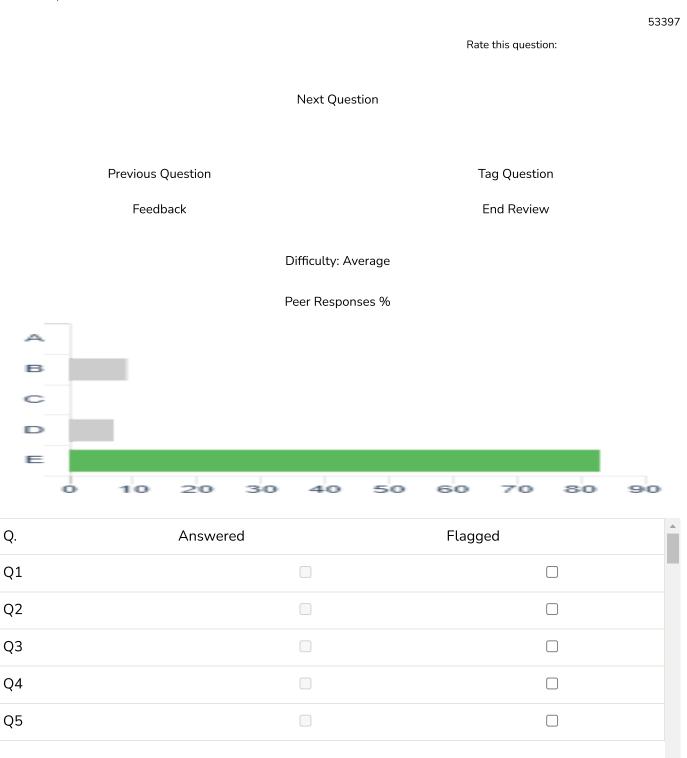
Bacille Calmette-Guérin vaccination may reduce the risk of bladder cancer recurrence in patients who have had the first tumour. In cancer treatment, it is given as intravesical therapy.

C Ramipril

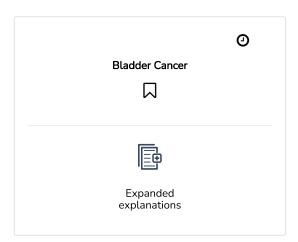
Angiotensin-converting enzyme inhibitors are not associated with an increased risk of bladder cancer. They are a standard first-line intervention for blood pressure control.

D Recurrent urinary tract infections

Recurrent urinary tract infections in older adults may lead to an increased risk of squamous cell carcinoma of the bladder, but not in children.



Q.	Answered	Flagged
Q6		
Q7		O



A 20-year-old man presents to the Renal Clinic with persistent haematuria and proteinuria over the past two months. The haematuria began acutely some 48 hours after an upper respiratory tract infection. His blood pressure is 125/82 mmHg.

Investigations:

Investigation	Result	Normal value
Haemoglobin	139 g/l	135–175 g/l
White cell count	8.1 × 10 ⁹ /l	$4-11 \times 10^9$ /l
Platelets	198 × 10 ⁹ /l	150-400 × 10°/l
Sodium (Na+)	142 mmol/l	135–145 mmol/l
Potassium (K+)	4.2 mmol/l	3.5–5.0 mmol/l
Creatinine	149 µmol/l	50–120 μmol/l
Urine analysis	Blood 1+, protein 1+	

Which of the following findings is most likely to be seen on renal biopsy?

Your answer was incorrect

A Capillary wall immunoglobulin G deposits

B Diffuse glomerular hypercellularity

C Glomerular basement membrane immunoglobulin D deposits

D Mesangial immunoglobulin A deposits

E Tubular immunoglobulin E deposits

Explanation



This patient's presentation with haematuria occurring within 48 hours of a respiratory tract infection is highly suggestive of immunoglobulin A nephropathy. In some patients, as seen here, haematuria and proteinuria may persist and a rise in creatinine levels may also be seen.

Renal biopsy is the optimal way to confirm the diagnosis where there are deposits of immunoglobulin A seen on electron microscopy within the mesangium. In some patients, these may extend into the subendothelial and subepithelial regions of the glomerular capillary wall, which may be associated with more severe disease. Angiotensin converting enzyme inhibitors are the mainstay of therapy in patients with proteinuria.

A Capillary wall immunoglobulin G deposits

Capillary wall immunoglobulin G deposits are seen in patients with membranous nephropathy where marked proteinuria is the usual presenting feature.

B Diffuse glomerular hypercellularity

Diffuse glomerular hypercellularity is seen in post-streptococcal glomerulonephritis. It can include endothelial, mesangial and migrating inflammatory cells.

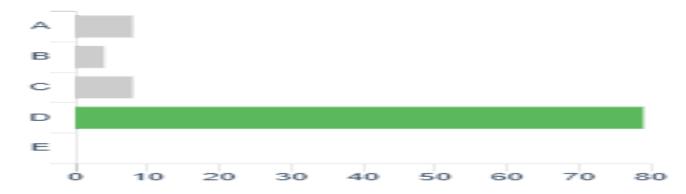
C Glomerular basement membrane immunoglobulin D deposits

Glomerular basement membrane immunoglobulin D deposits are virtually never seen. They may be noted in patients with immunoglobulin D-related heavy-chain disease.

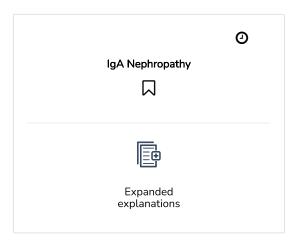
E Tubular immunoglobulin E deposits

Tubular deposition of immunoglobin E is reported in patients with acute interstitial nephritis. The clinical picture is consistent with immunoglobin A nephropathy as the underlying diagnosis.

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		Rate this question:	
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A 38-year-old man presents to the Respiratory Clinic with symptoms of emphysema that have not been controlled with a high-dose long-acting beta-agonist and long-acting muscarinic antagonist combination inhaler. His brother and cousin have recently been diagnosed with alpha-1-antitrypsin deficiency.

What is the pattern of inheritance of alpha-1-antitrypsin deficiency?

Your answer was incorrect

Α	Autosomal co-dominant
А	Autosomat co-dominant

B Autosomal dominant

C Autosomal recessive

D X-linked dominant

E X-linked recessive

Explanation

В

₿

A Autosomal co-dominant

Alpha-1-antitrypsin deficiency (AATD) is inherited in an autosomal co-dominant pattern. Co-dominant inheritance means that two different alleles can be expressed, with both contributing to the genetic trait. The M allele is the most common allele of the alpha-1 gene. It is associated with normal levels of alpha-1-antitrypsin. The Z allele is the most common gene variant. It causes AATD. The S allele is less common and also causes AATD. A carrier is a person who inherits one M allele and one Z allele or one S allele ('type PiMZ' or 'type PiMS', respectively). While levels of alpha-1-antitrypsin may not be normal, there is usually enough to protect the lungs, although smokers may have an increased risk of emphysema. An individual who inherits the Z allele from each parent is called 'type PiZZ'. This individual has very low alpha-1-antitrypsin levels, which allows elastase to damage the lungs and cause emphysema. An individual who inherits the S and Z variants is also likely to develop AATD.

Autosomal dominant

Alpha-1-antitrypsin deficiency does follow an autosomal dominant inheritance pattern, but it is co-dominant, meaning that two different alleles of the gene may be expressed, with both contributing to the genetic trait.

Autosomal recessive

C

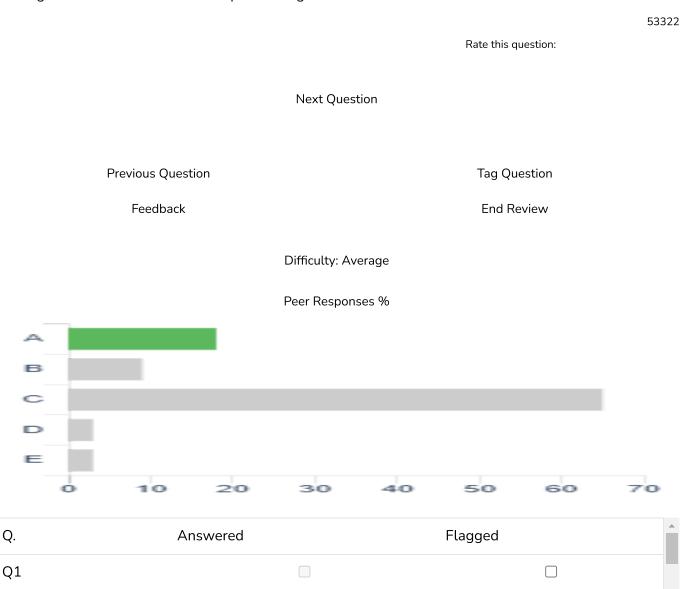
Given this patient's brother and one cousin are affected by the disease, autosomal recessive inheritance would be very unlikely to explain the pattern of symptoms. Cystic fibrosis is a good example of an autosomal recessive condition.

D X-linked dominant

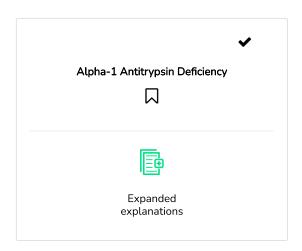
X-linked dominant conditions are those in which some symptoms of the conditions are seen in girls and women, although they may be less severe. A good example here is Alport's syndrome where progression of renal impairment is much slower, compared to affected boys and men, and there is often no clinical hearing impairment.

E X-linked recessive

X-linked recessive conditions only produce symptoms in boys and men, but girls and women can carry the affected gene. The most obvious example is red-green colour blindness.



Q.	Answered	Flagged
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A 70-year-old former shipyard worker is referred to the Respiratory Clinic with worsening shortness of breath and dull right-sided chest ache. He has had night sweats over the past few months. He smokes 30 cigarettes per day and takes a combination inhaler for chronic obstructive pulmonary disease. Most recently, he has been diagnosed with benign prostatic hypertrophy. His blood pressure is 134/84 mmHg and his heart rate is 79 bpm and regular. He has decreased air entry at the right base.

Investigations:

Investigation	Result	Normal value
Haemoglobin	149 g/l	135–175 g/l
White cell count	8.1×10^{9} /l	$4-11 \times 10^9$ /l
Platelets	209 × 10 ⁹ /l	150-400 × 10°/l
Sodium (Na+)	142 mmol/l	135–145 mmol/l
Potassium (K+)	4.2 mmol/l	3.5–5.0 mmol/l
Creatinine	85 µmol/l	50–120 μmol/l
Needle pleural aspirate	pH 7.1	> 7.2

Chest X-ray finds right-sided pleural effusion, bilateral pleural plaques.

Which of the following findings is most likely to be seen on renal biopsy?

Your answer was incorrect

A Bronchial carcinoma

B Cardiac failure

C Empyema

D Mesothelioma

E Metastatic prostate cancer

Mesothelioma

D

Working in a shipyard is likely to be associated with exposure to asbestos, resulting in the pleural plaques seen here on chest X-ray. With the pleural effusion, this raises the possibility of an underlying mesothelioma. The pH of the pleural fluid is also consistent with malignancy (< 7.3). Computed tomography (CT) is indicated to further evaluate the pleural effusion, with guided pleural biopsy to obtain a tissue diagnosis. Surgery, where possible, can significantly improve symptoms and survival. In those for whom surgery is not appropriate, then platinum-based chemotherapy is the preferred intervention.

A Bronchial carcinoma

Although bronchial carcinoma can be associated with a pleural effusion, given the features on the chest X-ray consistent with asbestos exposure, mesothelioma is a more likely cause of this patient's symptoms.

B Cardiac failure

Cardiac failure is usually associated with bilateral pleural effusions. The unilateral pleural effusion seen here fits more with a malignant aetiology.

C Empyema

Although the patient has night sweats, there are no other symptoms to suggest a recent lower respiratory tract infection which would fit with an empyema.

E Metastatic prostate cancer

Given this patient has only recently been suffering from symptoms of prostatic hypertrophy and this is thought to be due to benign disease, metastatic prostate cancer is very unlikely to be the cause of his symptoms.

Rate this question:

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Ast	pestos-related Dis	ease
		4
Media	Expanded explanations	Flashcards

A 25-year-old man is referred to the Endocrine Clinic because of episodes of severe headache, palpitations and anxiety that can last for 2–3 hours at a time. He has 3–4 episodes a week and feels these may be triggered by stress. He has a blood pressure of 149/90 mmHg, which is currently being monitored by his General Practitioner. His body mass index is 25 kg/m².

Investigations:

Investigation	Result	Normal value
Haemoglobin	135 g/l	135–175 g/l
White cell count	7.2 × 10 ⁹ /l	$4-11 \times 10^9$ /l
Platelets	203 × 10 ⁹ /l	150-400 × 10 ⁹ /l
Sodium (Na+)	142 mmol/l	135–145 mmol/l
Potassium (K+)	3.7 mmol/l	3.5–5.0 mmol/l
Creatinine	110 µmol/l	50–120 μmol/l

Which of the following is the most useful investigation?

Your answer was incorrect

A 24-hour urinary catecholamines and metanephrines

B 24-hour urinary-free cortisol

C 24-hour urinary 5-hydroxyindoleacetic acid

D Insulin tolerance test

E Renin—aldosterone ratio

Explanation



This patient has paroxysms of headache, palpitations and anxiety, likely to be due to periods of hypertension. These raise the possibility of an underlying phaeochromocytoma where urinary testing for catecholamines and metanephrines is the investigation of choice. Alcohol, levodopa and beta blockers can all interfere with the interpretation of the test and should be discontinued if possible. Computed tomography is the initial imaging modality of choice. Patients should be fully alpha-blocked with phenoxybenzamine before progressing to surgery.

B 24-hour urinary-free cortisol

The 24-hour urinary-free cortisol is the screening test for Cushing syndrome, which is characterised by weight gain, hypertension and impaired glucose tolerance.

C 24-hour urinary 5-hydroxyindoleacetic acid

Urine 5-hydroxyindoleacetic acid is the screening test for carcinoid syndrome, which is characterised by paroxysms of flushing and diarrhoea, and is seen in a more elderly population.

D Insulin tolerance test

Insulin tolerance testing is a screening test for growth hormone deficiency. It does not play a role in the diagnosis of phaeochromocytoma, the likely diagnosis here.

E Renin–aldosterone ratio

Although unexplained hypertension in a young patient may be due to hyporeninaemic hyperaldosteronism, the paroxysms of likely marked hypertension seen in this patient are more suggestive of a phaeochromocytoma.

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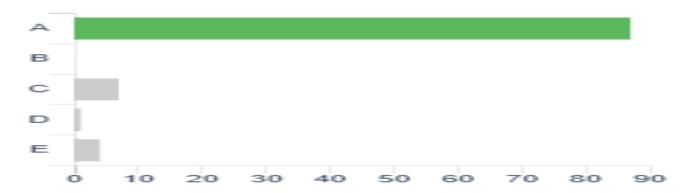
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F	Phaeochromocyton	⊙ na
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Media	Expanded explanations	Flashcards

A 29-year-old man, who is known to have ulcerative colitis (UC), is reviewed on the ward. Despite 72 hours of 60mg daily intravenous (IV) methylprednisolone, his symptoms have shown little improvement.

He is opening his bowels 6–8 times per day with bloody diarrhoea. His blood pressure is 105/82 mmHg; heart rate is 90 bpm and regular. His abdomen is soft with tenderness in the left iliac fossa.

Investigations:

Investigation	Result	Normal value
Haemoglobin (Hb)	98 g/l	135–175 g/l
White cell count (WCC)	12.2 × 10 ⁹ /l	4–11 × 10°/l
Platelets (PLT)	$381 \times 10^9/l$	150-400 × 10 ⁹ /l
Sodium (Na+)	144 mmol/l	135–145 mmol/l
Potassium (K+)	3.2 mmol/l	3.5–5.0 mmol/l
Creatinine (Cr)	142 μmol/l	50–120 μmol/l
C-reactive protein (CRP)	88 mg/l (94 mg/l on admission)	< 10 mg/l
Abdominal X-ray	4.5 cm colonic dilatation with evidence of oedema	

Which of the following is the most appropriate next intervention?

Your answer was incorrect

A Azathioprine

B Ciclosporin

C Switch methylprednisolone to IV hydrocortisone 100mg 6 hourly

D Mesalamine

E Methotrexate

Ciclosporin

В

Ciclosporin should be considered for patients with an acute exacerbation of UC who have little or no improvement within 72 hours of starting IV corticosteroids, or whose symptoms worsen at any time despite corticosteroid treatment, according to National Institute for Health and Care Excellence (NICE) guidelines. NICE guidelines recommend that infliximab can be used in patients who do not tolerate ciclosporin whilst British society of gastroenterology guidelines recommend either ciclosporin or infliximab. At this stage, the surgical team should also be closely involved, as if there is no rapid response to medical intervention, surgery is the only option.

A Azathioprine

Azathioprine is used as long-term maintenance therapy in patients who respond initially to ciclosporin. In this acute situation, onset of action is too gradual to impact on outcomes, and ciclosporin is preferred as initial therapy. Thiopurine s-methyltransferase (TPMT) testing is essential prior to starting therapy with azathioprine to reduce the risk of toxicity.

C Switch methylprednisolone to IV hydrocortisone 100mg 6 hourly

60mg methylprednisolone daily, delivered as a bolus, is just as efficacious as hydrocortisone 100mg 6 hourly. There is no benefit to switching the formulation of steroids. In fact, methylprednisolone has less mineralocorticoid effect than hydrocortisone and therefore is less likely to cause hypokalaemia.

D Mesalamine

Mesalamine is a chronic therapy for UC, used to maintain patients in remission. It is administered orally and can also be administered rectally for patients with limited distal UC where it may be superior to rectal corticosteroids.

E Methotrexate

Methotrexate at a low dose has not been shown to be effective in managing UC as part of a Cochrane metaanalysis of randomised controlled trials. As such, it is not recommended here.

52305 Rate this question:

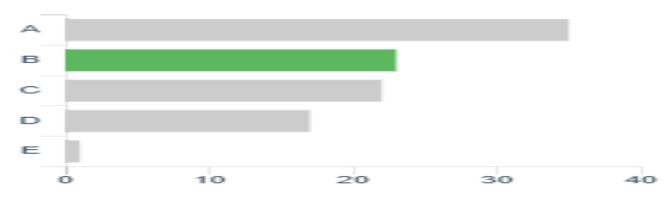
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Feedback End Review

Difficulty: Difficult

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& External Links

NICE Guidance – Treating acute severe ulcerative colitis: all extents of disease

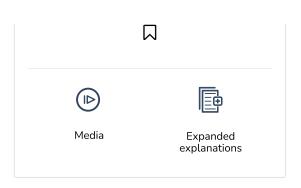
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Cochrane Review: Methotrexate for treatment of chronic active ulcerative colitis

cochrane.org/CD006618/IBD_methotrexate-for-treatment-of-chronic-active-ulcerative-colitis

 $(https://www.cochrane.org/CD006618/IBD_methotrexate-for-treatment-of-chronic-active-ulcerative-colitis)\\$





A 19-year-old man from South Asia is found to have microcytosis on donating blood. He has no symptoms of underlying illness. He is thought to have the beta thalassaemia trait.

Which form of haemoglobin is likely to be the most elevated?

Your ar	nswer was	SINCORR	1 ⊃4

Α	Haemoglobin A	۹2

B Haemoglobin E

C Haemoglobin F

D Haemoglobin H

E Haemoglobin S

Explanation

*

A Haemoglobin A2

The beta thalassaemia trait occurs because of a mutation in one of the beta globin alleles on chromosome 11. Beta 0 mutations lead to no production of functional beta globin; beta + mutations lead to production of smaller amounts of beta globin. The beta thalassaemia trait leads to microcytic anaemia, usually without symptoms. Haemoglobin A2 is increased, and there is a smaller proportional increase in haemoglobin F.

B Haemoglobin E

Haemoglobin E is an abnormal haemoglobin with a single point mutation in the beta chain at position 26 from glutamic acid to lysine.

C Haemoglobin F

Haemoglobin F levels are slightly increased in patients with the beta thalassaemia trait. However, a much larger increase is seen in haemoglobin A2 level.

Haemoglobin H

D

Haemoglobin H occurs in alpha thalassaemia and is characterised by increased haemolysis, moderate to severe anaemia and macrocytosis.

E Haemoglobin S

Haemoglobin S is a variant of haemoglobin that leads to sickle-cell disease. It is not a cause of beta thalassaemia.

Rate this question:

Next Question

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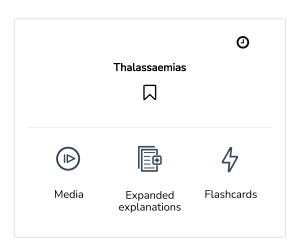
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A 45-year-old man presents to the Neurology Clinic for review. He has suffered three unprovoked episodes over the past three months where he suddenly falls to the ground with generalised limb jerking and he is unrousable for up to ten minutes afterward. On two occasions he was incontinent of urine and on one occasion he bit his tongue. He drinks 14 units of alcohol per week. Examination in the clinic is entirely normal.

Investigation:

Investigation	Result	Normal value
Haemoglobin	144 g/l	135–175 g/l
White cell count	7.0×10^{9} /l	$4-11 \times 10^9$ /l
Platelets	180 × 10 ⁹ /l	150-400 × 10 ⁹ /l
Sodium (Na+)	140 mmol/l	135–145 mmol/l
Potassium (K+)	3.0 mmol/l	3.5–5.0 mmol/l
Creatinine	75 μmol/l	50–120 μmol/l

Which of the following is the most likely cause of the patient's symptoms?

Your answer was incorrect

A Alcohol withdrawal seizures

B Epilepsy

C Non-epileptic seizures

D Paroxysmal ventricular tachycardia

E Vasovagal syncope

Explanation



Episodes of loss of consciousness for up to ten minutes, coupled with limb jerking, tongue biting and incontinence, fit best with a diagnosis of epilepsy. Although alcohol is a recognised precipitant of seizures, the patient's alcohol consumption is within recognised guidelines and the blood picture does not suggest significant alcohol abuse. Magnetic resonance imaging, looking for a seizure focus, is indicated and the patient should be advised not to drive. Levetiracetam and lamotrigine are potential initial interventions.

A Alcohol withdrawal seizures

Alcohol withdrawal seizures can occur in those at risk of alcohol withdrawal. Here, with alcohol consumption at the limit of the recommended guidelines (14 units), and a lack of other features of alcohol withdrawal (sweating, tachycardia, agitation, tremor), it is unlikely this patient is withdrawing from alcohol. Alcohol withdrawal, including seizures, is usually treated with a reducing regimen of chlordiazepoxide in a supported setting, with adjuvant thiamine administration.

C Non-epileptic seizures

Non-epileptic seizures would be suggested by atypical movements, which can wax and wane, and preserved consciousness, with rapid recovery from an episode in the setting of previous trauma, which may not be immediately obvious.

D Paroxysmal ventricular tachycardia

There are no signs of cardiac disease and a more rapid recovery would be expected in patients suffering from self-terminating episodes of ventricular tachycardia.

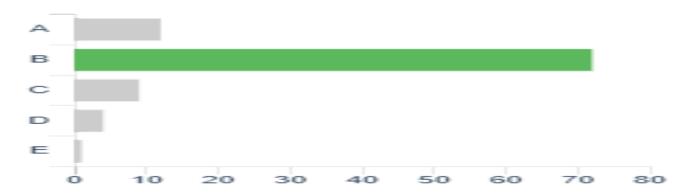
E Vasovagal syncope

Vasovagal syncope does not fit with the prolonged period of loss of consciousness, incontinence or tongue biting. The episodes fit better with epileptic seizures.

Peer Responses %

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E	pilepsy and Seizur	⊙ res
(ID) Media	Expanded explanations	47 Flashcards

A 23-year-old man is referred to the Respiratory Clinic because of recurrent right lower lobe pneumonia. He has had three episodes over the last 12 months. He seems to chronically produce too much sputum and feels short of breath all the time. He is a current smoker of ten cigarettes per day. Auscultation of the chest reveals coarse crackles at the right base.

Investigations:

Investigations	Result	Normal value
Haemoglobin	148 g/l	135–175 g/l
White cell count	$7.1 \times 10^9 / l$	$4-11 \times 10^9 / l$
Platelets	298 × 10 ⁹ /l	150-400 × 10 ⁹ /l
Sodium (Na+)	143 mmol/l	135–145 mmol/l
Potassium (K+)	4.9 mmol/l	3.5–5.0 mmol/l
Creatinine	75 μmol/l	50–120 μmol/l

Chest X-ray shows patchy shadowing at the right lung base.

Computed tomography chest shows bronchial wall dilation at the right lung base, signet ring sign is also seen.

Which of the following is the most likely cause of the patient's recurrent pneumonia?

Your answer was incorrect

A Asthma

B Bronchiectasis

C Chronic bronchitis

D Immunoglobulin A deficiency

E Primary ciliary dyskinesia

Bronchiectasis

Recurrent pneumonia with chronic changes on the chest X-ray is suggestive of bronchiectasis, with the computed tomography appearance typical of the condition. Around 40% of cases of bronchiectasis develop after childhood infections, including measles, pertussis, influenza and respiratory syncytial virus infection. In 50% of cases, however, the aetiology is unclear. Physiotherapy is the mainstay of intervention, with long-term antibiotics recommended for patients who have three or more infective exacerbations per year.

A Asthma

В

Asthma is much less likely to be the cause of this patient's symptoms, given there is no reported wheeze and recurrent right lower lobe pneumonia is the main complaint.

C Chronic bronchitis

Chronic bronchitis is associated with bronchial wall dilatation and thickening, as seen on computed tomography chest. The presence of the signet ring sign and localised recurrent pneumonia is, however, more suggestive of bronchiectasis.

D Immunoglobulin A deficiency

Immunoglobulin A deficiency is unlikely, given that this patient's recurrent pneumonia affects the right lower lobe only. Previous viral or bacterial infection is the commonest cause of bronchiectasis.

E Primary ciliary dyskinesia

Primary ciliary dyskinesia is a rare autosomal recessive condition. It affects the function of cilia within the respiratory epithelium and the ear, as well as within the fallopian tube in women, and affects the function of the flagella of sperm cells in men.

Feedback

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	Bronchiectasis	0
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Media	Expanded explanations	Flashcards

A 26-year-old woman presents to the General Practioner complaining of shortness of breath and extreme fatique, such that she is not able to leave the house. Her father died of coronavirus (COVID-19) and she suffered from COVID-19 symptoms for one week at the time. Physical examination is unremarkable. She has had a normal ventilation/perfusion scan, respiratory function tests and cardiac echocardiography. Which of the following is the most likely underlying diagnosis?

Your answer was incorrect

Α	Adjustment disorder
$\overline{}$	Aujustinent disorder

В Conversion disorder

C Long COVID-19

D Malingering

Ε Somatic symptom disorder

Explanation

✡

Ε Somatic symptom disorder

This patient has particular focus on shortness of breath and fatigue, yet physical examination, lung function tests, ventilation perfusion scan and echocardiogram are all normal. This makes long COVID-19 where many patients have demonstrated respiratory or cardiovascular abnormalities for a prolonged period after initial infection very unlikely. The symptoms fit with somatic symptom disorder and the trigger for her symptoms is likely to have been the stress of catching COVID-19 herself and the death of her father due to the disease. Cognitive behavioural therapy is the intervention of choice.

Adjustment disorder Α

Adjustment disorder is an emotional or behavioural reaction to a stressful or life-changing event. The reaction becomes an adjustment disorder when the reaction is considered excessive.

В Conversion disorder

Conversion disorder leads to functional paralysis of a limb or another specific neurological symptom, such as blindness, after a period of psychological stress.

C Long COVID-19

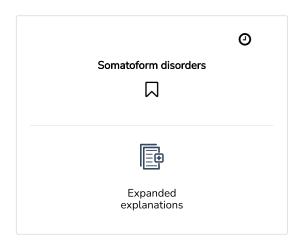
Long COVID-19 is widely reported, although the normal lung function measures and echocardiogram make this much less likely to be the underlying cause of this patient's symptoms.

D Malingering

It is not apparent from the scenario that this patient is actively seeking to avoid work, making malingering very unlikely as the cause of her symptoms.

53403 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % в =Ó 10 20 30 40 50 Q. Answered Flagged Q1 Q2 Q3 Q4

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A 45-year-old woman with a smooth, enlarged goitre and symptoms of thyrotoxicosis is started on carbimazole 40 mg daily.

Which of the following is the mode of action of carbimazole?

Your answer was incorrect

Α	Myeloperoxidase	inhibitor
$\overline{}$	Myeloperoxidase	

- B Thyroid peroxidase inhibitor
- C Type 1 deiodinase activator
- D Type 1 deiodinase inhibitor
- E Type 3 deiodinase inhibitor

Explanation

₩

B Thyroid peroxidase inhibitor

Thyroid peroxidase oxidises iodide to iodine, which enables its incorporation into thyroglobulin to enable production of thyroid hormone. Without the action of thyroid peroxidase then thyroxine cannot be produced. The enzyme is inhibited by thiamazole the active metabolite of carbimazole. Thiamazole also inhibits the coupling of iodotyrosine with iodothyronine residues which further suppresses the production of thyroid hormones.

A Myeloperoxidase inhibitor

Myeloperoxidase is abundantly expressed in neutrophils and is responsible for catalysing the formation of a number of reactive oxidant species. It does not have a role in thyroid hormone production.

C Type 1 deiodinase activator

Type 1 deiodinase converts T4 into T3. It is not activated or inhibited by carbimazole.

Type 1 deiodinase inhibitor

D

Type 1 deiodinase converts T4 into T3. While it may be inhibited by some plastic compounds including bisphenol A. It is not inhibited by carbimazole.

E Type 3 deiodinase inhibitor

Type 3 deiodinase converts the thyroid hormones T3 and T4 into inactive metabolites. It is not inhibited or activated by carbimazole.

53310 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % 20 30 40 50 60 10 Ó Q. Answered Flagged Q1 Q2 Q3 Q4 Q5

Q.	Answered	Flagged
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Q7		

A 54-year-old man with worsening dyspepsia is reviewed in the Gastroenterology Clinic following an upper gastrointestinal endoscopy. The endoscopy has revealed a small gastric MALToma. He is also found to be *Helicobacter pylori*-positive.

Which of the following is the most appropriate next step?

Your answer was incorrect

Α	Chlorambucil and rituxima	h
A	Chlorambucil and rituxima	D

- B Cyclophosphamide, vincristine and prednisolone
- C Gastrectomy
- D Gastric radiotherapy
- E *H.pylori* eradication

Explanation

Ε

Α

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H.pylori eradication

Gastric MALTomas are very strongly associated with H. pylori infection, and very high cure rates are seen with H. pylori eradication alone as an initial intervention where patients are H. pylori-positive (70–80%). In those who respond clinically and endoscopically to intervention but who have residual disease, a watch-and-wait approach can be considered, with surveillance endoscopy and periodic biopsies. In patients who have a t (11:18) translocation who are considered high risk, or people who have progressive disease, chemotherapy plus or minus gastric radiotherapy may be considered.

Chlorambucil and rituximab

Chlorambucil and rituximab are an alternative chemotherapy option for patients with residual MALToma after *H. pylori* eradication and features suggesting a high risk of progression.

B Cyclophosphamide, vincristine and prednisolone

Cyclophosphamide, vincristine and prednisolone are a combination chemotherapy option for patients with residual MALToma after *H. pylori* eradication who have high-risk features for progression.

C Gastrectomy

Gastrectomy is not usually required for gastric MALToma. A number of options are considered first, from *H. pylori* eradication to chemotherapy and gastric radiotherapy.

D Gastric radiotherapy

Gastric radiotherapy is considered for patients with residual MALToma after *H. pylori* eradication and chemotherapy who are at high risk of progression.

53365 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % Q. Answered Flagged Q1 Q2 Q3 Q4

Q.	Answered	Flagged
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08		

An 18-year-old man is referred to the Dermatology Clinic with scalp hair loss. He has a circular area of hair loss affecting the crown. The central portion appears to have healed. It is surrounded by a circular area of scaling skin and hair loss.

Which of the following is the most appropriate treatment?

Your answer was incorrect

A Oral azathioprine

B Oral prednisolone

C Oral terbinafine

D Topical hydrocortisone

E Topical ketoconazole

Explanation

₩

E Topical ketoconazole

This patient's symptoms are typical of tinea capitis with a circumferential area of hair loss and central healing and scaling around the margin. Topical antifungals, including an agent such as ketoconazole, are the initial intervention of choice. Systemic treatment with antifungals could be considered when there is a poor response to topical therapy.

A Oral azathioprine

This patient's symptoms are most consistent with tinea capitis. As such, immunosuppression is inappropriate. Azathioprine may be of value in treatment of alopecia.

B Oral prednisolone

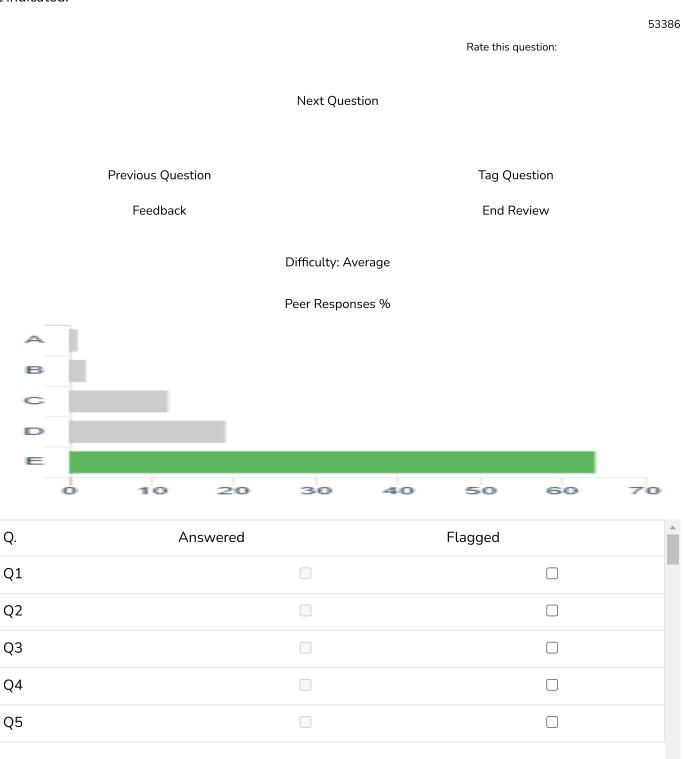
Oral prednisolone is not of value in the treatment of tinea capitis. A tapering dose of steroids may be of value in the treatment of alopecia.

C Oral terbinafine

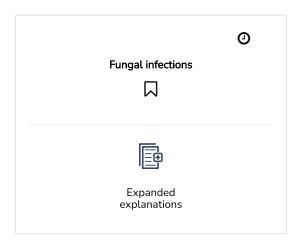
Topical antifungals are generally effective in treating limited tinea capitis infection. Oral intervention could be considered in patients who do not respond to topical therapy.

D Topical hydrocortisone

Given the aetiology of this patient's hair loss is infective, rather than inflammatory, use of corticosteroids is not indicated.



Q.	Answered	Flagged
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Q7		



A 21-year-old woman is brought to the Emergency Department by her housemates. She believes that the University authorities are controlling her via an implant in her brain and that they are broadcasting her thoughts to others in the house. According to her housemates, she was mugged four weeks earlier and believes the fact that one of the attackers was wearing a red jacket meant the implant had happened. She refuses to consent to physical examination and appears to be talking to people who are not in the room. Which of the following is the most likely diagnosis?

Willelf of the fottowing is the most tikety diagnos

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v	OUR	answer	14/20	Inco	rract

- A Bipolar disorder
- B Drug-induced psychosis
- C Post-traumatic stress disorder
- D Schizophrenia
- E Schizoid personality disorder

Explanation

₽

D Schizophrenia

This patient has three cardinal features of schizophrenia: thought insertion, thought broadcasting and a primary delusional perception (the red-shirted man). Auditory hallucinations with a third person providing a commentary on actions are also common and may account for the patient talking to someone who is not there. An atypical antipsychotic, such as risperidone, is the initial intervention of choice. Sedatives are used as a second-line medication, if required, to control agitation.

A Bipolar disorder

В

Bipolar disorder is associated with depressive periods and periods of mania. The periods of mania are more likely to result in delusions of grandeur than the symptoms seen here.

Drug-induced psychosis

Drug-induced psychosis may well lead to agitation and hallucinations. However, the thought insertion, broadcasting and primary delusional perception are much more consistent with schizophrenia.

C Post-traumatic stress disorder

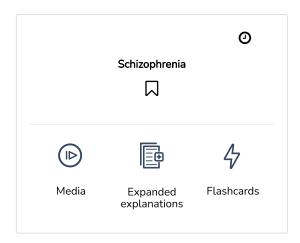
Post-traumatic stress disorder is associated with preoccupation and intrusive thoughts concerning the triggering event. It does not fit with the other symptoms seen here.

E Schizoid personality disorder

Schizoid personality disorder is a chronic condition characterised by social isolation and indifference to other people. It does not fit with this patient's presentation with acute deterioration, raising the possibility of a new diagnosis of schizophrenia.

53405 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % D Q. Answered Flagged Q1 Q2 Q3

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A 25-year-old woman is being reviewed in the Emergency Department after having an acute exacerbation of asthma 30 minutes earlier. She has had symptoms for the past 72 hours and started her rescue pack of prednisolone 48 hours ago. Her temperature is 37.8 °C, blood pressure 142/78 mmHg and heart rate 102 bpm and regular. She has a wheeze throughout both lung fields on auscultation of the chest. Despite continuous nebuliser therapy, her peak flow is only 40% of predicted.

Which of the following is the most important next step?

Your answer was incorrect

Α	Intravenous aminophylline
	men are arrange arrangement

B Intravenous co-amoxiclav

C Intravenous hydrocortisone

D Intravenous magnesium

E Intravenous salbutamol

Explanation

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D Intravenous magnesium

The British Thoracic Society (BTS) asthma guidelines suggest giving patients a single dose of intravenous magnesium sulphate for patients with a PEFR greater than 50% predicted value, or to those who have not responded well to bronchodilator therapy.

A dose of 1.22~g of intravenous magnesium sulphate delivered over 20~minutes is recommended. The guidelines do not recommend adding magnesium sulphate to the nebuliser fluid.

A Intravenous aminophylline

British thoracic society guidelines do not suggest significant additional benefit from giving aminophylline in acute severe asthma. The patient is already receiving adequate beta agonist therapy.

B Intravenous co-amoxiclav

The majority of asthma exacerbations are viral. At this point, intravenous magnesium is likely to be of more benefit in this patient's management.

C Intravenous hydrocortisone

This patient has started her rescue pack of steroids some 48 hours earlier. This suggests there will be little additional benefit gained from intravenous hydrocortisone at this stage.

E Intravenous salbutamol

Given this patient has been receiving continuous nebuliser therapy for 30 minutes, she is likely to have received an adequate beta agonist dose. Delivering more salbutamol intravenously may only increase the risk of cardiac arrhythmia.

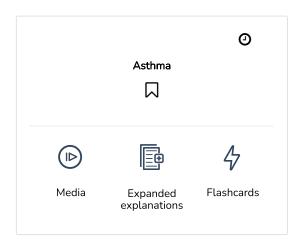
53318 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % в C D 10 50 80 Q. Answered Flagged Q1 Q2 Q3

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${\cal S}$ External Links

Asthma

 $brit-thoracic.org.uk/document-library/guidelines/asthma/btssign-asthma-guideline-quick-reference-guide-2019/\\ (https://www.brit-thoracic.org.uk/document-library/guidelines/asthma/btssign-asthma-guideline-quick-reference-guide-2019/)$



A 50-year-old man presents to the Renal Clinic with idiopathic membranous glomerulonephritis. He has pitting oedema in both lower limbs and wants to discuss options for treatment. His blood pressure is 138/82 mmHg, and peripheral oedema is confirmed.

Creatinine levels are 132 μ mol/l (normal value 50–120 μ mol/l) and 24-hour urinary protein excretion is 4.5 g (normal value 30 mg)

Which of the following is the most appropriate initial therapy?

Your a	inswer was incorrect	
А	Adalimumab	
В	Belimumab	
С	Infliximab	
D	Omalizumab	
Е	Rituximab	
Explar	nation	*
Е	Rituximab	

Rituximab is recommended as the initial therapy for membranous nephropathy. It is an anti-CD20 monoclonal antibody, which is a B cell-depleting agent. Rituximab is more effective than ciclosporin at maintaining remission in patients with membranous glomerulonephritis at 24 months. In patients who progress more rapidly, treatment with cyclophosphamide and methylprednisolone can be considered.

A Adalimumab

Adalimumab blocks tumour necrosis factor alpha activity such as infliximab. It is used in the treatment of a range of inflammatory disorders.

B Belimumab

Belimumab is an anti-BLyS antibody, which reduces B cell activity. It is used primarily in the treatment of systemic lupus erythematosus.

C Infliximab

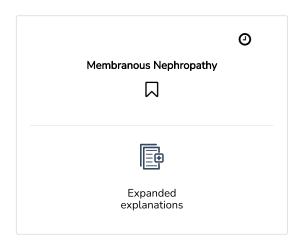
Infliximab binds to tumour necrosis factor alpha to prevent it from binding to its receptors and driving a proinflammatory cascade. It is used in the treatment of inflammatory arthritis and inflammatory bowel disease.

D Omalizumab

Omalizumab inhibits the binding of immunoglobulin E (IgE) to the IgE receptor. Its primary use is in the treatment of asthma not controlled by other therapies where IgE levels and eosinophil counts are elevated.

53419 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % в C Ó 10 20 30 40 50 60 Q. Answered Flagged Q1 Q2 Q3 Q4

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A 72-year-old man has been admitted to the Renal Ward with urinary sepsis. He has been vomiting overnight and the nurses have noted a deterioration in his creatinine level over the past 36 hours. He is currently being treated with gentamicin. His temperature is 37.9 °C. His blood pressure is 110/80 mmHg and his heart rate is 98 bpm and regular. His abdomen is soft, with mild tenderness.

Investigations:

Investigation	Result	Normal value
Haemoglobin	142 g/l	135–175 g/l
White cell count	13.1×10^9 /l	$4-11 \times 10^9/l$
Platelets	189 × 10°/l	150-400 × 10 ⁹ /l
Sodium (Na+)	136 mmol/l	135–145 mmol/l
Gentamicin trough	1.5 mg/l	1–2 mg/l
Potassium (K+)	5.1 mmol/l	3.5–5.0 mmol/l
Creatinine	231 µmol/l 72 hours after admission 172 µmol/l 36 hours after admission 142 µmol/l on admission	50–120 μmol/l
Urinary sodium	98 mmol/l	< 20 mmol/l
Urine dipstick	Protein 1+, white cells 1+ and red cells negative	

Which of the following is the most likely diagnosis?

Your answer was incorrect

А	Acute interstitial nephritis
В	Acute tubular necrosis
С	Gentamicin nephrotoxicity
D	Haemolytic uraemic syndrome

Prerenal acute renal failure

В

Acute tubular necrosis

The urinary sodium level is significantly above 40–50 mmol/l, meaning acute tubular necrosis (ATN) is the most likely diagnosis here. This has likely occurred as a result of hypotension and poor renal perfusion related to urinary sepsis. The findings on dipstick further support this as the most likely diagnosis. No therapies have proven benefit in ATN, although loop diuretics and inotropes are used extensively in the management of the condition.

A Acute interstitial nephritis

Acute interstitial nephritis is associated with a rise in eosinophil count and is more usually seen in patients who are prescribed penicillins or cephalosporins, rather than gentamicin.

C Gentamicin nephrotoxicity

Gentamicin nephrotoxicity does lead to acute tubular necrosis. The gentamicin trough levels here are in the acceptable range, meaning gentamicin toxicity is much less likely as the cause of his renal impairment.

D Haemolytic uraemic syndrome

Haemolytic uraemic syndrome is associated with red cell fragmentation, blood and proteinuria, which does not fit with the scenario seen here.

E Prerenal acute renal failure

Feedback

In prerenal acute renal failure, there is a tendency to conserve sodium. Hence a urinary sodium level < 20 mmol/l would be expected.

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Rate this question:

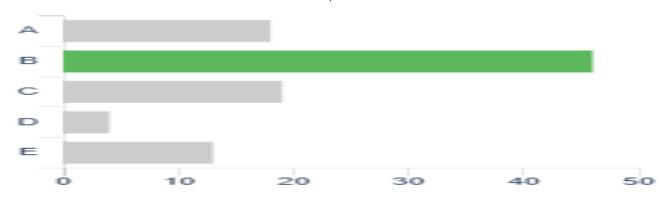
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Acute Tubular Necrosis	
Expanded explanations	

A 67-year-old woman is started on pyridostigmine for symptoms of myasthenia gravis.

Which of the following is the mode of action of pyridostigmine?

Your answer was incorrect

Α	Acetylcholinesterase inhibitor
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B Dopamine agonist

C Nicotinic receptor antagonist

D Noradrenalin reuptake inhibitor

E Phosphodiesterase type 5

Explanation

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A Acetylcholinesterase inhibitor

Pyridostigmine is an acetylcholinesterase inhibitor. It inhibits acetylcholinesterase in the synaptic cleft and does not cross the blood-brain barrier. It has a more prolonged duration of action than neostigmine and is a slightly weaker inhibitor, which drives better tolerability in patients with myasthenia gravis. Doses of 30–120mg are given throughout the day (usually at 4–6 hour intervals). In myasthenia gravis, pyridostigmine is usually given in combination with immunomodulators.

B Dopamine agonist

Ropinirole is an example of a dopamine agonist. These agents are used in the treatment of Parkinson's disease and prolactinomas.

C Nicotinic receptor antagonist

Nicotinic receptor antagonists are used in the treatment of chronic obstructive pulmonary disease as bronchodilators. In myasthenia gravis potentiation of the cholinergic nervous system is desired.

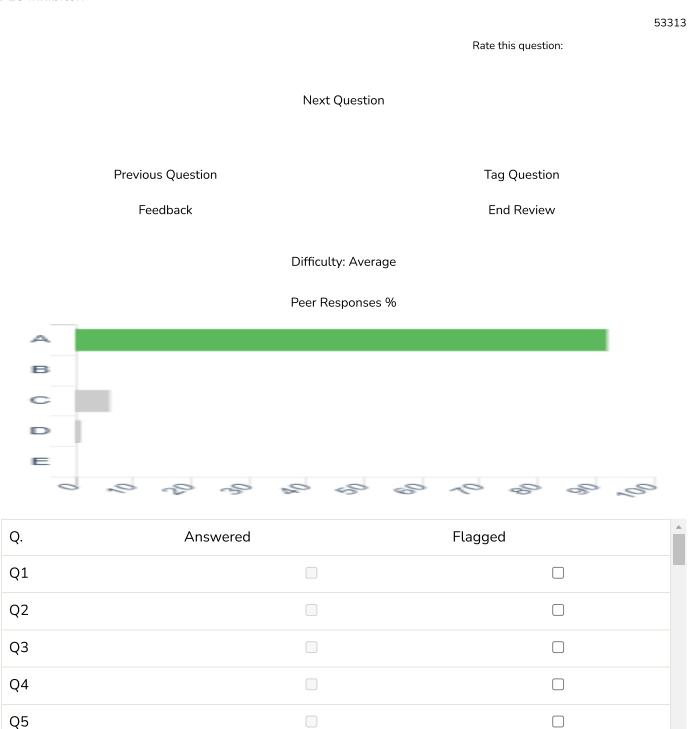
Noradrenalin reuptake inhibitor

Noradrenalin reuptake inhibitors are used in the treatment of depression. Reboxetine is an example from the class.

E Phosphodiesterase type 5

D

Phosphodiesterase type 5 (PDE5) inhibitors are used in the treatment of erectile dysfunction and pulmonary hypertension. They do not play a role in the treatment of myasthenia gravis. Sildenafil is an example of a PDE5 inhibitor.



Q.	Answered	Flagged	
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A 48-year-old woman is referred to the Hepatology Clinic with elevated transaminases. She has an impaired fasting glucose. Her blood pressure is 142/84 mmHg and her heart rate is 78 bpm and regular. Her body mass index is 35 kg/m^2 .

Investigations:

Investigation	Result	Normal value
Haemoglobin	142 g/l	115–155 g/l
White cell count	5.9×10^9 /l	$4.5-11 \times 10^9$ /l
Platelets	121 × 10 ⁹ /l	150-400 × 10°/l
Sodium (Na+)	140 mmol/l	135–145 mmol/l
Potassium (K+)	3.0 mmol/l	3.5–5.0 mmol/l
Creatinine	85 µmol/l	50–120 μmol/l
Alanine aminotransferase	98 IU/l	1–40 IU/l
Aspartate aminotransferase	103 IU/l	10-35 IU/l
Alkaline phosphatase	142 U/l	30–130 U/l
Fibrosis-4 (fib-4) score	3.1	< 2.67

Which of the following is the most appropriate next step?

Your answer was incorrect

Α	Bariatric surgery
В	Liraglutide 3 mg
С	Metformin 1 g twice daily
D	Pioglitazone 40 mg
E	Vitamin E

В



Liraglutide 3 mg

This patient has non-alcoholic steatohepatitis (NASH) related to obesity, and the Fib-4 score > 2.67 indicates significant liver fibrosis. Significant weight loss is the only intervention likely to impact on long-term outcomes, and liraglutide 3 mg is licensed for obesity management. Liraglutide has also been shown in a NASH trial to have a positive impact on liver histology. Side-effects such as nausea and vomiting can usually be managed with patient education and compliance aids.

A Bariatric surgery

Bariatric surgery is considered as an intervention for non-alcoholic steatohepatitis (NASH) in patients who are unable to lose weight by other interventions such as liraglutide. There is evidence that, when performed, bariatric surgery improves metabolic syndrome, lipid profiles and type II diabetes.

C Metformin 1 g twice daily

Metformin has modest effects on weight loss in patients with NASH. However, they are unlikely to be clinically significant, compared to high-dose glucagon-like peptide 1 (GLP-1) agonism.

D Pioglitazone 40 mg

Feedback

Pioglitazone has been shown to cause some improvement in fibrosis in patients with NASH. However, long-term outcomes are unproven, and it has negative effects over the long term on bone mineral density and fluid retention.

E Vitamin E

This patient has obesity-related fatty liver disease. Vitamin E has been shown to cause some improvement in histology, although this is unproven with respect to long-term outcomes in the condition.

53366
Rate this question:

Next Question

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Tag Question

End Review

Difficulty: Average

Peer Responses %



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Non-alcoholic Fa	⊙ atty Liver Disease
∐ Media	Expanded explanations

A 19-year-old woman presents to the Emergency Department with extreme lethargy, shortness of breath, bleeding around her gums and easy bruising. She says her symptoms have got markedly worse over the past ten days. Her temperature is 37.9 °C, blood pressure 95/65 mmHg and heart rate 98 bpm and regular. She has cervical lymphadenopathy, gum hypertrophy and enlarged tonsils with obvious bleeding. There are petechiae and bruises over all four limbs and hepatosplenomegaly.

Investigations:

Investigation	Result	Normal value
Haemoglobin	82 g/l	115–155 g/l
White cell count	25.2×10^9 /l (> 75% blast cells, decreased neutrophils)	4-11 × 10°/l
Platelets	45×10^9 /l	150-400 × 10 ⁹ /l
Sodium (Na+)	142 mmol/l	135–145 mmol/l
Potassium (K+)	4.9 mmol/l	3.5–5.0 mmol/l
Creatinine	133 µmol/l	50–120 μmol/l

Which of the following is the most likely diagnosis?

Your answer was incorrect

A Acute myeloid leukaemia

B Chronic lymphocytic leukaemia

C Chronic myeloid leukaemia

D Hodgkin's lymphoma

Non-Hodgkin's lymphoma

Explanation



Ε

This patient has a marked increase in blast cells and decreased neutrophils on the peripheral blood film, hepatosplenomegaly and low platelet count, with increased bleeding. Taking these features and the speed of deterioration into account, acute myeloid leukaemia is the most likely diagnosis. Bone marrow aspiration is the diagnostic investigation of choice, with cytochemical staining to determine the subtype of acute myeloid leukaemia. Treatment is co-ordinated across specialist centres, with all patients usually involved in a clinical trial where possible.

B Chronic lymphocytic leukaemia

Chronic lymphocytic leukaemia is associated with a marked increase in the peripheral blood lymphocyte count, splenomegaly and an increased risk of viral infection, not with the acute presentation and increase in blast cells seen here.

C Chronic myeloid leukaemia

The peripheral blood film in chronic myeloid leukaemia is associated with an increase in mature white cells across the myeloid lineage, including basophils and eosinophils.

D Hodgkin's lymphoma

Hodgkin's lymphoma does fit with this patient's age group. However, it is primarily associated with night sweats and lymphadenopathy, rather than with the rapid deterioration with a very high percentage of blast cells seen in peripheral blood.

E Non-Hodgkin's lymphoma

Non-Hodgkin's lymphoma is associated with an older age at presentation and would not fit with the percentage of blast cells seen here.

Feedback

Difficulty: Average

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Act	ute Myeloid Leukad	⊙ emia
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Media	Expanded explanations	Flashcards

A 44-year-old woman who has lived for many years in rural Vietnam is referred to the Oncology Clinic with a diagnosis of hepatocellular carcinoma. She has taken the oral contraceptive pill for 20 years and drinks one glass of spirits each evening.

Which risk factor is the most important in the development of this patient's cancer?

			_
Your	answer	was ir	icorrect

Α	Aflatoxin exposure
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B Alcohol consumption

C Hepatitis C

D Microcystin exposure

E Oral contraceptive pill use

Explanation

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Aflatoxin exposure

Aflatoxins contaminate crops, including maize, ground nuts and fermented soy beans, in tropical and subtropical countries, particularly those with warm, humid climates. Poor storage of crops increases the risk of fungal toxin exposure, so levels are higher in subsistence farming communities. It is likely therefore this patient has a relatively high level of exposure. Interventions such as drying the crops on cloth, rather than earth, and hand sorting to remove fungal-contaminated crops can reduce exposure levels.

B Alcohol consumption

This patient's alcohol consumption is likely very modest, meaning it is a minor contributor, at worst, to the risk of hepatocellular carcinoma.

C Hepatitis C

Hepatitis C is a relatively minor contributor to the risk of hepatocellular carcinoma risk, compared to hepatitis B, in developing countries.

Microcystin exposure

D

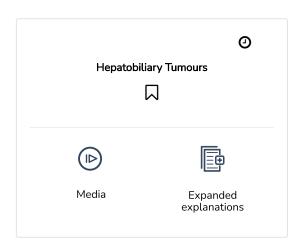
Microcystin exposure is reported as a risk factor predominantly in rural Chinese populations where there is increased consumption of ditch and pond water.

E Oral contraceptive pill use

Multiple studies suggest that the combined oral contraceptive pill does not significantly increase the risk of liver cancer.

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A 73-year-old woman has recurrent urinary tract infections. On her last presentation, a plain X-ray has demonstrated a staghorn calculus.

What is a staghorn calculus composed of?

Your a	nswer was incorrect
А	Calcium oxalate
В	Cystine
С	Magnesium ammonium phosphate
D	Urate
Е	Xanthine
Explar	nation \$
С	Magnesium ammonium phosphate
	orn calculi are composed of magnesium ammonium phosphate. They are caused by urinary pathogens

Staghorn calculi are composed of magnesium ammonium phosphate. They are caused by urinary pathogens which produce urease, including Proteus and Klebsiella. Once stones have formed, they can harbour bacteria, even after a course of antibiotic therapy, meaning that surgical removal of stones may be required.

A Calcium oxalate

Calcium oxalate stones are the most common form of renal stones. They are not, however, responsible for the formation of staghorn calculi.

B Cystine

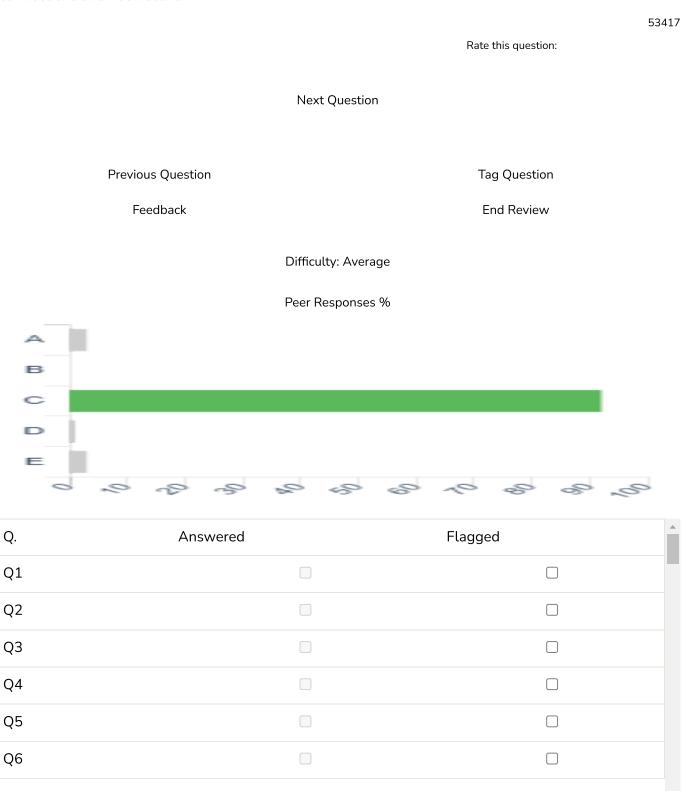
Cystine stones are seen in patients with cystinuria, which carries an autosomal recessive inheritance pattern.

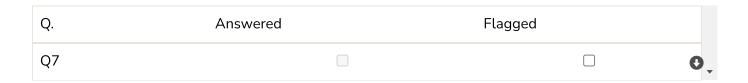
D Urate

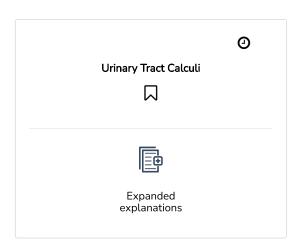
Urate stones are seen as a result of hyperuricaemia, which may or may not be accompanied by clinical symptoms of gout. Xanthine oxidase inhibitors, such as allopurinol, are the intervention of choice, along with dietary avoidance of purine-containing foods.

E Xanthine

Xanthine stones occur in hereditary xanthinuria and are associated with recurrent abdominal pain, urinary tract infections and haematuria.







A 28-year-old farmer presents to the Infectious Diseases Clinic with a rapidly enlarging, firm red/blue papule on his right index finger. He has been helping his father with lambing. He says the lesion has grown over five or six days and it now looks like it has a target-like pattern over the surface, with a red centre, a white surround and a red periphery.

Which of the following is the most likely cause of this patient's symptoms?

Your a	answer was incorrect	
А	Herpes zoster virus	
В	Human papillomavirus	
С	Mycobacterium avium	
D	Mycobacterium marium	
Е	Parapox virus	
Explai	nation	*
Е	Parapox virus	

This patient has orf, which is caused by a parapox virus. Exposure levels to parapox virus are high in livestock farmers, particularly when they are dealing with lambing or young goats. It is not transmitted to cattle or between humans. Fully developed lesions are usually around 2–3 cm in diameter and clear within 5–6 weeks, giving lifelong immunity thereafter. Lesions which are slow to heal can be treated with cryotherapy or cidofovir cream.

A Herpes zoster virus

Herpes zoster virus is associated with a dermatomal vesicular rash. It does not fit with the picture seen here.

B Human papillomavirus

Human papillomavirus leads to warty lesions, which are seen on the fingers. The lesion described here is papular in nature and more consistent with parapox virus infection.

C Mycobacterium avium

Mycobacterium avium causes respiratory symptoms similar to mycobacterium tuberculosis, with infection seen more often in immunocompromised patients.

D Mycobacterium marium

Mycobacterium marinum causes what is known as fish tank granuloma and leads to lesions usually on the hands where aquarium owners have had an existing hand injury.

53381 Rate this question: **Next Question Previous Question** Tag Question Feedback **End Review** Difficulty: Average Peer Responses % =Ó 10 20 30 40 50 60 Q. Answered Flagged Q1 Q2 Q3 Q4

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A 42-year-old man presents to the Neurology Clinic suffering from right-sided headaches which occur around his right eye. They last from 15 minutes to two hours and can occur up to 3–4 times per day, beginning at around the same time each evening. He describes the headaches as being associated with sharp, severe pain, as well as with tearing and redness of the right eye. Neurological examination in the clinic is unremarkable. Which of the following is the most likely diagnosis?

\ /				
Your	answer	MAC II	acarra	\sim t
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Α	Cluster headache

- B Migraine
- C Idiopathic intracranial hypertension
- D Trigeminal neuralgia
- E Vestibular neuronitis

Explanation

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A Cluster headache

Cluster headache fits with this patient's symptoms of unilateral headache affecting the area around the eye, accompanied by autonomic symptoms such as tearing and conjunctival injection. The duration of the headaches, occurring over a short, predictable period of the day, also fits with the diagnosis. High-flow oxygen is useful for acute treatment of the headaches. Over the longer term, verapamil is effective as prophylaxis – it can be used at a total daily dose of up to 480 mg.

B Migraine

Migraine is associated with unilateral headache and an aura, which may include a period of visual disturbance. It is also associated with nausea.

C Idiopathic intracranial hypertension

Idiopathic intracranial hypertension is associated with headaches which are worse on lying flat and on straining, and may be associated with visual obscurations and tinnitus. It is most commonly seen in obese young women.

D Trigeminal neuralgia

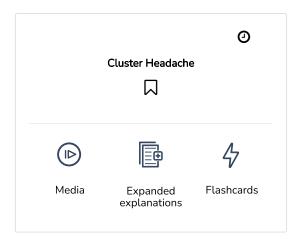
Trigeminal neuralgia is characterised by unilateral shooting pain which feels like an electric shock. It can be brought on by cold wind or touch, eg cleaning teeth.

E Vestibular neuronitis

Hemicrania continua manifests as continuous unilateral headaches, with ipsilateral autonomic symptoms This headache disorder is exquisitely responsive to indomethacin.

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A 38-year-old man presents to the Respiratory Clinic as part of contact tracing due to his wife being diagnosed with active tuberculosis. He has no symptoms and is usually fit and well. An initial chest X-ray from his General Practitioner has been reported as normal.

Which of the following is the most appropriate next step?

Your answer was incorrect

Α	Interferon	gamma	release	assay
		_		,

- B Mantoux test
- C Repeat chest X-ray in three months
- D Repeat sputum cultures for acid alcohol-fast bacilli
- E Tuberculosis polymerase chain reaction on serum

Explanation

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B Mantoux test

Mantoux testing is the initial investigation of choice for individuals who are close contacts of patients with active tuberculosis (TB) and require screening. Where the test has an induration of 5 mm or larger, regardless of whether the patient has had bacille Calmette–Guérin vaccination or not, then the patient should be assessed for active TB. If the Mantoux test is positive and further confirmation of latent TB is required before committing to treatment (eg if there are likely potential adverse effects of therapy), then an interferon-gamma release assay should be performed.

A Interferon gamma release assay

Interferon gamma release assay testing is only recommended after a positive Mantoux test, if further confirmation of tuberculosis infection is required to consider treatment. It is not a first-line option.

C Repeat chest X-ray in three months

Repeated chest X-rays will not exclude latent tuberculosis. They are not, therefore, the preferred option here.

Repeat sputum cultures for acid alcohol-fast bacilli

Given the patient has no symptoms of tuberculosis (TB), repeat sputum cultures may well be negative for TB and will not exclude latent TB. As such, they are not the preferred next step.

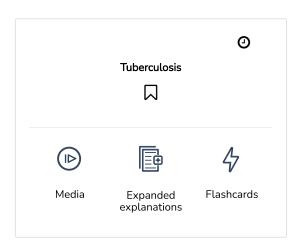
E Tuberculosis polymerase chain reaction on serum

D

Tuberculosis polymerase chain reaction on serum is useful in patients with suspected pulmonary TB who have had a negative sputum smear or who are unable to produce sputum for testing.

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A 45-year-old electrician presents to the General Practitioner complaining of his inability to grasp tools properly because of thumb weakness and numbness predominantly over the thumb and index finger of his right hand. Weakness of palmar abduction of the right thumb, loss of sensation over the palmar aspect of the thumb, index and half of the ring finger and over the thenar eminence is confirmed.

What is the most likely site of nerve compression?

Your answer was incorrect

A Median nerve at the elbow

B Median nerve at the wrist

C Radial nerve at the elbow

D Ulnar nerve at the elbow

E Ulnar nerve at the wrist

Explanation



A Median nerve at the elbow

Median nerve compression at the elbow leads to loss of sensation over the thenar eminence and the palmar aspect of the thumb, index and middle fingers. It also leads to weakness of thumb abduction, which fits with the clinical picture seen here. This occurs as a result of pronator teres syndrome where the nerve is trapped between the two heads of the pronator teres muscle.

B Median nerve at the wrist

Weakness of thumb abduction is seen with median nerve compression at the wrist. However, loss of sensation over the thenar eminence suggests the compression is more proximal, likely at the level of the elbow.

C Radial nerve at the elbow

Radial tunnel syndrome occurs when the nerve is compressed at the elbow. Pain occurs around 2 cm distal to that usually seen in tennis elbow and there may be weakness of the muscles at the wrist, including wrist drop.

D Ulnar nerve at the elbow

Ulnar nerve compression at the elbow is known as cubital tunnel syndrome. It leads to pain, numbness and weakness primarily of the fourth and fifth digits.

E Ulnar nerve at the wrist

Ulnar nerve compression at the wrist can occur because of impingement on the ulnar canal. It is seen classically in cyclists because of recurrent pressure against the handlebars. Numbness and weakness over the fourth and fifth digits are seen.

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A 25-year-old woman presents to the Neurology Clinic with a dilated right pupil. The right pupil reacts slowly to light, but briskly to accommodation. Once constricted, it is very slow to relax. No other neurological abnormalities are noted.

Which of the following is the most likely diagnosis?

Your answer was incorrect

A Argyll Robertson pupil

B Holmes-Addie pupil

C Horner syndrome

D Internuclear ophthalmoparesis

E Third nerve palsy

Explanation

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Holmes–Addie pupil

The Holmes–Addie pupil occurs due to damage to the ciliary ganglion or post-ganglionic parasympathetic fibres. Causes include bacterial or viral infections such as herpes zoster. It is most often seen in young women in the third or fourth decade and is a benign condition. The pupil reacts slowly to light, but briskly to accommodation and is slow to relax once it has constricted. Corrective glasses may be required, but no other intervention is usually needed.

A Argyll Robertson pupil

Argyll Robertson pupils are tonically small and react poorly or not at all to light, but briskly to accommodation.

C Horner syndrome

Horner syndrome is associated with a sunken eye on the affected side, pupillary constriction, ptosis and an absence of facial sweating.

D Internuclear ophthalmoparesis

Internuclear ophthalmoparesis is a gaze abnormality manifest by impaired horizontal eye movements. Adduction of the affected eye is weak and slow, and there is abduction nystagmus of the contralateral eye.

E Third nerve palsy

Third nerve palsy is associated with a dilated pupil; the eye looks down and out, and there is ptosis. It does not fit with the clinical picture seen here.

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